

Apple shake-up hits all levels

Earnings shortfall to prompt layoff of 1,000

By Lisa Picarille

Cupertino, Calif. — Apple is expected to cut about 1,000 jobs next month in the wake of its announcement that it will post disappointing earnings for its second half of fiscal 1993.

The layoffs, to affect less than 10 percent of Apple's worldwide work force of about 14,000 employees, will be across-the-board, sources said.

Groups targeted to be hit the hardest include the Enterprise Systems Division, the Macintosh Systems Division, the Macintosh Software Architecture Division and



Apple USA, according to sources. Even the Advanced Technology Group, formerly a sacred cow, is reportedly on the hit list.

Analysts said they expect most cuts to come from marketing and support positions. "Apple usually feels that R&D is sacrosanct," said Peter Lieu, an analyst with the New York investment banking company Furman Selz.

Apple, which has already responded to the expected shortfall by cutting prices (see story, Page 3), declined to comment on the possibility of layoffs.

See Layoffs, Page 124

PB inventories build as sales slow

By Jon Swartz

San Francisco — What a difference a year makes.

Just 12 months ago, PowerBooks were Apple's hottest-selling products, surpassing \$1 billion in sales and compensating for a price war that ate into the margins of the rest of the company's CPU line.

Today, Apple is reportedly considering price cuts across the PowerBook line and shedding the light-selling PowerBook 165c and Duo 210 to shore up sales and clarify what industry observers call a confusing product line.

An Apple spokeswoman said that while PowerBook sales have slowed in recent months, they remain "brisk year to year."

Yet analysts said Apple needs to take action to energize sales. "Apple has to do something dramatic. There are too many products at too many price points to choose from," said Doug Kass, principal of The Viewpoint Group in Aptos, Calif.

According to dealers and analysts, PowerBook sales have flattened, and Duo sales are down 75 percent. As a result, Apple has had to cut prices twice on selected models since May to stimulate sales. The company introduced two models this month — the 180c and the 145B — aimed at

See PowerBooks, Page 124

Sculley steps down, Spindler new CEO

By Lisa Picarille

Cupertino, Calif. — After more than a decade as Apple's leader, John Sculley is relinquishing his duties as chief executive officer.

Michael H. Spindler, Apple president for the past two years, will take over the reins as CEO. Sculley remains Apple chairman.

The announcement came last Friday after a board of directors meeting at which Sculley announced his decision to step down. Sculley, who leaves on a six-month sabbatical starting next month, will no longer serve as Apple's chief technology officer. The position, which was created when Spindler was made president, will no longer exist.

"This is no surprise," Sculley said. "About two years ago I identi-

See Sculley, Page 123

Companion to encompass all Apple cross-platform products

By MacWEEK staff

Cupertino, Calif. — Companion, Apple's plan to break out of its proprietary shell, covers areas as diverse as personal digital assistants and Unix servers. While Companion is basically a brand name for Apple's cross-platform efforts, many of the technologies that fall under its

umbrella represent Apple's hopes for a future with "Apple everywhere."

Sources said Apple will apply the Companion moniker by year-end to all its cross-platform efforts, including Newton, QuickTime, QuickDraw GX, AppleTalk, Amber, Pen recognizers, Casper and portable Finder.

See Companion, Page 123

Under the Companion umbrella			
Technologies	Handwriting, AppleTalk, QuickDraw GX, Amber, QuickTime, Finder		
OSes	Newton	Mac OS DR DOS	PowerOpen, AIX Solaris, HP/UX
Platforms	ARM x86 PowerPC	68K PowerPC x86	SPARC PowerPC HP-PA

Scripting tools to go Hollywood

By Neil McManus

Beverly Hills, Calif. — Multimedia developers, film directors and cable television executives will descend on Digital World 93 here this week to see the latest digital video and multimedia authoring tools.

Apple and Kaleida Labs Inc. will

take the stage to introduce tools for developing cross-platform multimedia titles, while a handful of companies will demonstrate high-end upgrades to Macintosh-based video-production hardware and software.

See Digital, Page 122



VideoFusion 1.5, which supports hardware acceleration and field rendering, will be among several high-end QuickTime programs showcased at Digital World 93.

News Analysis

LaserWriter glut causes confusion in printer lineup

By Matthew Rothenberg

Cupertino, Calif. — Apple's laser printer models are burgeoning, and the hodgepodge of configurations and families is perplexing users and industry observers.

"I am really confused about what [Apple is] doing. What is going on with the LaserWriter Select vs. Pro series?" said Marco Boer, an analyst with International Data Corp. of Framingham, Mass.

Apple currently offers eight laser printers in four different families, and sources said it plans three more printers in the LaserWriter Select and LaserWriter Pro lines this summer, plus several new models later this year.

The lineup comprises:

See LaserWriters, Page 124

Special Report

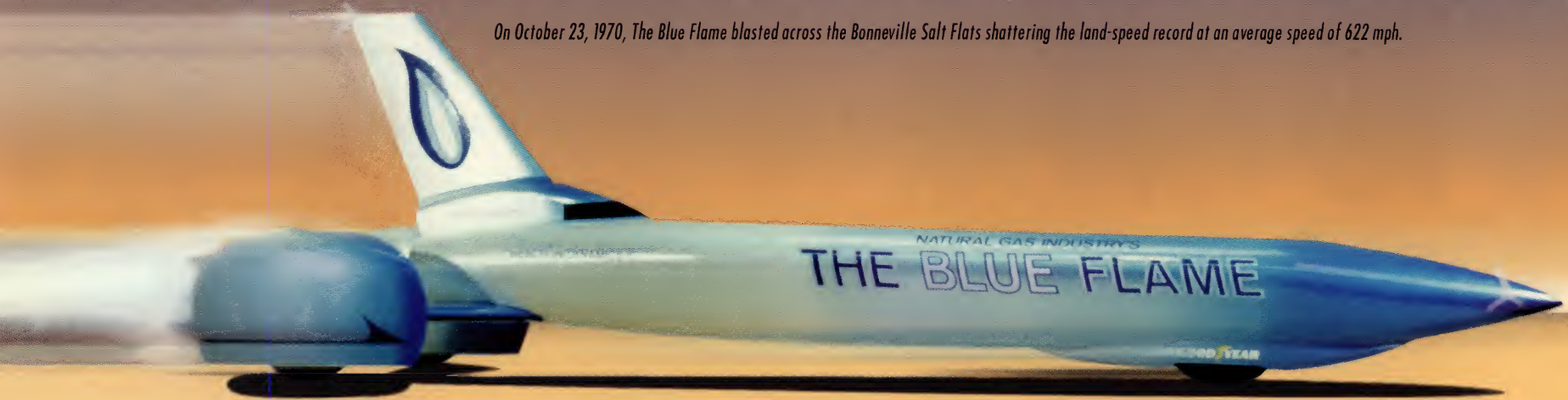
Document Interchange

Putting new applications and old standards to work

See Page 40

Introducing The 40 MHz Turbo 040... Up to 50% Faster Than a Quadra 800 or 950

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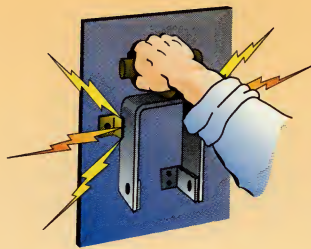


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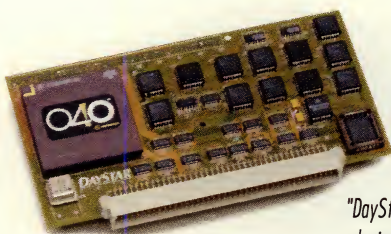
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MacWEEK, May 17, 1993

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*Mac SE/30, II, IIx, IIcx, IIsi and IIci are now available. Mac IIvi, IIvx and Performa 600 have limited availability thru July, 1993.

Apple shaves prices, offers rebates on CPUs, peripherals

By Kirsten L. Parkinson

Cupertino, Calif. — Responding to competitors' pricing and its own projections of lower earnings, Apple last week cut prices and offered a slew of rebates on its product line.

The company dropped prices on selected CPUs, including the PowerBook 180 and Centris 610, from 7 percent to 13 percent, while prices for some peripherals fell as much as 28 percent (see chart).

In addition, Apple's rebate program gives users instant rebates of \$25 to \$350 when they buy selected CPU models, printers and scanners. The offer runs through Sept. 30.

In a separate announcement, the company offered rebates of up to \$1,000 to AppleShare users who upgrade to AppleShare Pro and buy an Apple Workgroup Server 95.

Users must buy AppleShare Pro and either an Apple Workgroup Server 95 or Workgroup Server 95 upgrade kit between June 1 and Sept. 30. The deadline for returning rebate coupons is Oct. 31.

Registered AppleShare users who purchased AppleShare 3.0 before Jan. 1 qualify for a \$500 rebate, while users who bought Version 3.0 after Jan. 1 can receive \$1,000 back.

The announcements came just days after Apple revealed that its earnings for the second half of fiscal 1993 will be lower than expected.

AppleShare rebate coupons and additional information are available from Apple Business Incentives at (800) 846-6723, the Apple Customer Assistance Center at (800) 776-2333, the AppleFax line at (800) 462-4396 or on AppleLink. □

Price cuts, rebates on Macs, peripherals

PRODUCT	OLD PRICE	NEW PRICE	REBATE
Classic II	\$1,079	no change	\$50
Color Classic	\$1,389	no change	\$50
Centris 610 4/80*	\$1,859	\$1,659	\$150
Centris 610 4/80	\$1,969	\$1,769	\$150
Centris 610 8/230	\$2,519	\$2,319	\$150
Centris 610 8/230 w/CD	\$2,899	\$2,699	\$300
Mac IIvx 4/80	\$1,899	\$1,659	\$150
Mac IIvx 4/230	\$2,269	\$2,029	\$150
Mac IIvx 8/230	\$2,459	\$2,219	\$150
Mac IIvx 5/80 w/CD	\$2,339	\$2,099	\$300
PowerBook Duo 210	\$1,839	no change	\$100
PowerBook 165c 4/80	\$3,399	no change	\$50
PowerBook 165c 4/120	\$3,759	no change	\$50
PowerBook 180 4/80	\$4,109	\$3,699	\$100
PowerBook 180 4/120	\$4,469	\$4,059	\$100
Duo Dock	\$1,079	no change	\$150
Duo Dock w/230-Mbyte drive	\$1,975	no change	\$350
Macintosh Portrait Display	\$889	no change	\$75
Basic Color Monitor	\$329	no change	\$25
LaserWriter IIg	\$2,309	no change	\$200
LaserWriter Pro 600	\$2,099	no change	\$100
Personal LaserWriter NTR	\$1,179	no change	\$200
Apple Color Printer	\$1,659	no change	\$50
Apple Color OneScanner**	\$1,349	\$1,199	\$100
Apple OneScanner**	\$949	\$869	\$50
AppleCD 150	\$499	\$369	none
AppleCD 300	\$599	\$429	none
Upgrade to AppleShare Pro and Apple Workgroup Server 95	varies	no change	up to \$1,000

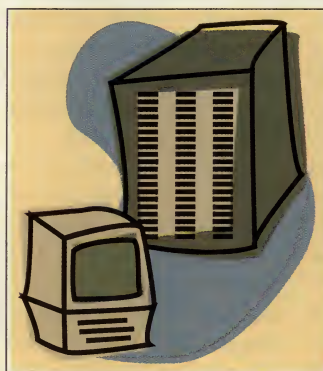
*No Ethernet. **With accessory kit. Source: Apple.

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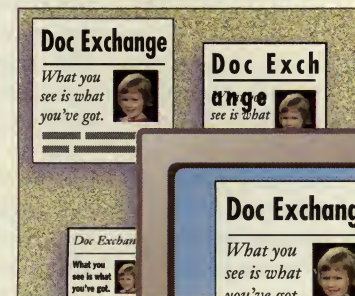
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Acrobat ships for Mac, Windows

Third parties support distribution technology

By Henry Norr

New York — After more than two years of leaks, hints and previews, Adobe Systems Inc. put Acrobat on center stage last week, proclaiming that the new electronic document distribution technology will “fundamentally change the economics of information.”

Adobe said it had begun shipments of both Mac and Windows versions of Acrobat, a family of products designed to allow users to distribute, read and print fully formatted documents independent of the platform and application where they were created (see story, Page 41 and MacWEEK, June 14).

In an enthusiastic presentation before hundreds of major customers, analysts, reporters and industry representatives here, Adobe CEO John Warnock declared that Acrobat will “change the way people use computers [and] companies do business” and could even have a “substantial impact on ecology and efficiency.”

Citing a beta-test program that involved more than 400 client sites, Warnock, company President Chuck Geschke and other Adobe executives pointed to a variety of immediate

uses for the technology, including electronic publication of product catalogs, phone directories, books, periodicals and research reports; distribution of complex forms in industries such as insurance and banking; and transmission of draft documents and ad layouts for customer approval.

Adobe also brought together a number of third parties to announce their support for the new technology. AlphaGraphics Inc. said customers will be able to create, view, print and transmit Acrobat files at its worldwide network of print shops. R.R. Donnelley Inc., the world's largest commercial printer, said it will license Acrobat for distribution to its customers, while Eastman Kodak Co. will offer it to users of the Defense Printing Service.

In addition, Adobe said it and Lotus Development Corp. have entered a “technology partnership” to enable users of Lotus Notes to store files within Notes databases in Acrobat's Portable Document Format (PDF). Elixir Technologies Corp. said it plans to offer software that will enable users to turn mainframe-generated documents into PDF files.

Multex Systems, a Jersey City, N.J.-based start-up, said it is planning a new service that will make investment-research reports from brokerages, banks and independent organizations available in Acrobat format. The service, called

Multex Publisher, is slated for launch late this year.

“Right now these reports are available as ASCII text, but we will be able to incorporate the charts, tables and everything else,” said James Tousignant, Multex vice president. “I am not sure we could do it at all without Acrobat. We would have to try to get all our customers and suppliers to agree on standard formats, and that would probably prove impossibly complicated.”

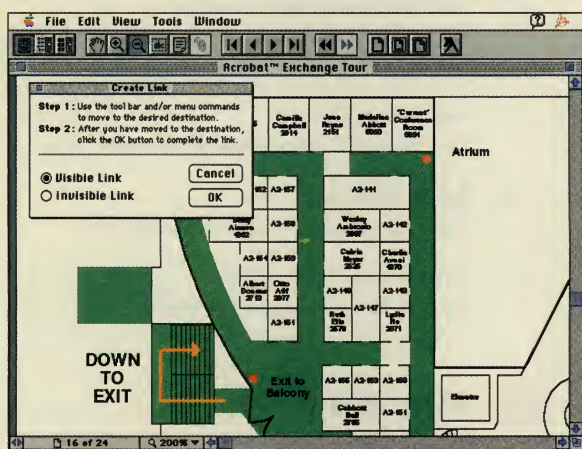
In an effort to establish Acrobat as an industry standard, Adobe announced an official Portable Document Reference Manual, available now from Addison-Wesley Publishing Co. for \$24.95. A software developers kit is due this fall.

Adobe said it expects to release DOS and Unix versions of Acrobat late this year. A utility that will let users search multiple PDF documents for specified text strings is also due by year-end; Adobe demonstrated a prototype called Acrobat Explorer at last week's rollout. Support for structured documents, including Standard Generalized Markup Language, is due next year. Additional enhancements now under development, according to Adobe, include support for device-independent color management and embedded video and audio, as well as tools that let users edit PDF files.

Adobe said customers purchasing any Acrobat packages will have free access to its Automated Technical Support and Fax Request Line, which provides answers to commonly asked questions, but direct support will be available free only for a limited period. The company will offer a variety of paid support plans, including an annual support program, a 900 number, and a training and backup program for corporate help desks.

Adobe is at 1585 Charleston Road, P.O. Box 7900, Mountain View, Calif. 94039-7900. Phone (415) 961-4400; fax (415) 961-3769. □

Adobe finally released its Acrobat electronic document distribution technology last week. The Acrobat Exchange application (shown) lets users view, navigate and annotate PDF files.



DayStar ships new versions of Turbo 040 accelerator

By Raines Cohen

Flowery Branch, Ga. — DayStar Digital Inc. this week shipped a version of its Turbo 040 accelerator that is compatible with more Macs, as well as a version without a floating-point coprocessor.

► **Turbo 040.** The company's 68040-based accelerator is now available for the Mac SE/30, II, IIfx and IIfx. The card requires the same \$49 DayStar machine-specific adapters used for the 68030-based Universal PowerCache (but a new

adapter is required for the Mac IIfx).

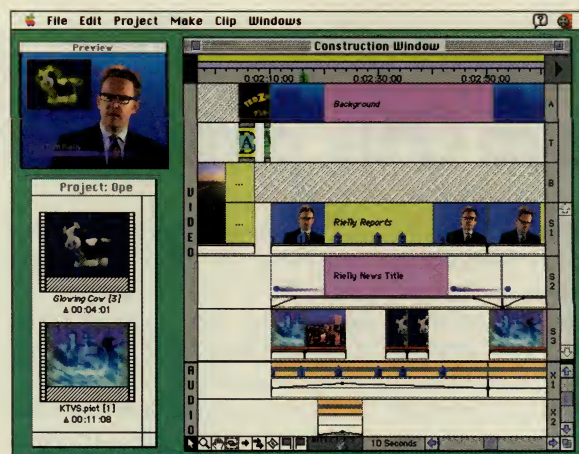
Turbo 040 sells for \$1,299 in a 25-MHz model; \$1,599 for a 33-MHz model; and \$2,399 for a 40-MHz model, including cache. The FastCache Turbo Cache sells separately for \$199.

► **Turbo 040i.** The company also shipped a \$799 accelerator based on the 68LC040, which does not include an FPU (floating-point unit). The card now works with the Mac SE/30, II, IIfx, IIfx, IIfx and IIfx. A version for the IIfx, IIfx and

Performa 600 is due in July. It uses the same adapters and cache as the Turbo 040.

DayStar offers a swap-up program, in which users upgrade by paying the difference in retail price. The cards come with a three-year warranty and a 30-day money-back guarantee.

DayStar Digital Inc. is at 5556 Atlanta Highway, Flowery Branch, Ga. 30542. Phone (404) 967-2077 or (800) 962-2077; fax (404) 967-3018. □



Adobe Premiere 3.0 will come with a new Construction window that displays thumbnails in multiple sizes and modes, including the “heads and tails” of a clip.

Adobe Premiere 3.0 to offer faster processing, previews

Users will be able to overlay 99 tracks

By Neil McManus

Mountain View, Calif. — Adobe Systems Inc. next week will roll out Adobe Premiere 3.0. at Digital World 93 in Beverly Hills, Calif.

Due to ship for \$695 by August's Macworld Expo, the new version offers more tracks and faster processing and previews (see MacWEEK, May 10). A \$795 CD-ROM version includes animated tutorials and stock movies.

Enhancements include:

► **Improved previewing.** Previews can run from disk at the full frame rate supported by the system, allowing hardware boards to display full-screen, full-motion previews. Version 3.0 compiles only sections of a preview that have changed since the last preview.

► **Faster processing.** The Make Movie command can build movies without having to reprocess transitions and effects. Cuts-only movies are compiled almost instantly.

► **More layers.** In one pass, users will be able to overlay up to 99 stereo audio tracks and 99 video tracks, each with its own motion, filters and transparency. A new “virtual clip” feature will let users treat any area on the time line as a clip, allowing multiple transitions on any layer.

► **New titling features.** Gradient fills can be applied to objects, shadows and alpha-channel masks. Drop shadows with optional soft edges can be applied to any object at user-defined angles and distances. Clips can now be dragged into and viewed in the title window.

► **Batch capture and calibration.** Users will be able to create a list of clips to be automatically captured at once from controllable decks. Users will be able to edit at low resolution and later redigitize and recompile a project at high resolution. A software

digital waveform monitor and vector scope will let users calibrate incoming video signals.

► **Smoother playback.** Subpixel motion and field rendering ensure smoother motion of video and animation.

► **Improved audio editing.** Users will be able to set an unlimited number of beat makers. The program will let users zoom in to edit at up to one six-hundredth of a second. Support of the new Apple Sound Manager will let the program edit CD-quality audio with hardware support.

Robin Stelling, art director at The Computer Graphics Co. of Sausalito, Calif., used a beta copy of Premiere 3.0 to prepare videos for the Grateful Dead's summer concert tour. “It's nice having a lot of layers to work with,” she said. “I would combine a clip of a dancer with fractals and icons of skeletons and roses. Everything moves on its own layer.”

Upgrades are \$129 for the disk version and \$199 for the Deluxe CD-ROM until Nov. 1, and \$179 to \$249, respectively, thereafter.

Adobe Systems Inc. is at 1585 Charleston Road, P.O. Box 7900, Mountain View, Calif. 94039-7900. Phone (415) 961-4400; fax (415) 961-3769. □

For the record

The June 14 story on Strata StudioPro from Strata Inc. should have quoted beta-tester John Nyquist as saying he likes features such as birth and death markers for objects. Nyquist also said that using different programs for modeling, rendering and animation can cause compatibility problems.

Because of incorrect information provided by ACI US Inc., a chart in the June 14 issue said the company derives 60 percent of its revenues from international sales. The actual number is 15 percent.

Looks like Mac users just got their very own HP LaserJet.



The new generation HP LaserJet 4M printer.

At last. An HP laser printer built specifically for the Mac—the new LaserJet 4M. A laser printer with everything Mac users need. From built-in PostScript™ Level 2 software from Adobe™ to standard LocalTalk and optional EtherTalk.

The finest print quality in its class.

Thanks to HP's microfine toner, Resolution Enhancement technology, and advanced engine designed expressly for 600 x 600 dpi, the LaserJet 4M printer delivers the finest print quality of any 600-dpi machine available.

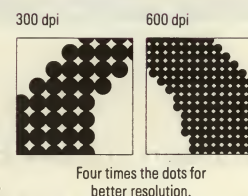
And with a new RISC processor and 6 MB of standard memory accelerating formatting and I/O speeds, complex PostScript and graphics files are rendered faster and more clearly than ever before.

Greater flexibility. The HP LaserJet 4M printer also sets new standards in versatility, with a wide range of typefaces and two integrated paper trays.

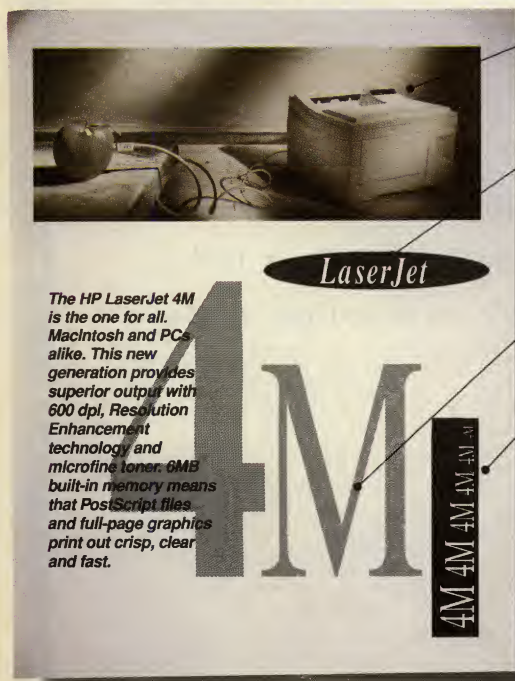
As well as the options of a 500-sheet tray and power envelope feeder.

And it's designed to be shared simultaneously by PCs and Macs. Automatic language switching between PCL 5 and PostScript, and 3 hot I/Os give mixed environments greater flexibility. Without compromise to either.

Of course, with the HP LaserJet 4M printer, you'll enjoy HP's renowned quality and reliability. All for only \$2,399*. So call 1-800-LASERJET (1-800-527-3753) Ext. 7340** for print sample† and comparison disk. Or visit your nearest authorized HP dealer.



Four times the dots for better resolution.



True 600 dpi creates rich, full-dimensional text and graphics.

Smoother curves, no jagged edges, thanks to HP's exclusive Resolution Enhancement technology.

Microfine toner makes 600-dpi output look even sharper.

35 PostScript Type 1 typefaces for Mac and PC PostScript language users, 35 Intellifont and 10 TrueType typefaces for PC users produce a broad range of document styles.

The HP LaserJet 4M is the one for all. Macintosh and PCs alike. This new generation provides superior output with 600 dpi, Resolution Enhancement technology, and microfine toner. 6MB built-in memory means that PostScript files and full-page graphics print out crisp, clear and fast.

LaserJet

4M 4M 4M 4M 4M

**hp HEWLETT
PACKARD**

Intuit Quickens the pace of accounting

By Raines Cohen

Menlo Park, Calif. — Intuit Inc. next month will ship a major upgrade to the Mac version of its Quicken accounting application.

Quicken 4, the first upgrade since 1991 to the best-selling package, leapfrogs the DOS and Windows versions with enhancements including investment tracking, loan amortization, graphs, financial planning and automatic import of electronic-form credit card records.

Although the program is aimed at home users, it has a large following

among small businesses and corporate departments for simple accounting functions. The company claims it has more than half a million users.

New features of the \$69.95 package include:

► **QuickFill.** Quicken 4 compares new entries to previously entered transactions as users type, retrieving category and amount information in just a few keystrokes.

► **Graphs.** The program can now create color pie and bar charts to help users visually analyze budgets, income and expenses, net worth, and

investment performance. Users can click on a graph segment to see the actual dollar amount it represents and double-click to see detail reports and the actual transactions in a category.

► **IntelliCharge.** Users can apply for a Quicken-labeled Visa Gold card that supplies monthly statements electronically via disk or modem for \$3 to \$5 per month.

► **Investment tracking.** The new version helps users track stocks, bonds, mutual funds, brokerage accounts and complete portfolios. The program can report on capital gains, investment transactions and internal rate of return.

► **Loan amortization.** A new module tracks loan principal and interest, calculates loan payment schedules, and updates balances. It can handle fixed and variable-rate loans, balloon payments, prepayments, and negative amortization.

► **Output.** Quicken 4 can publish sections of a report as well as export and print more windows and reports than before.

The program's interface has also been enhanced with balloon help, a proprietary help system and

simpler interaccount transfers.

"Version 4 does everything that I need for personal financial tracking, investment planning and investment management," said Karen Lesko, an operations manager with Westinghouse Electric Corp.'s Savannah River Co. in Aiken, S.C. "The IntelliCharge feature saves a lot of time. It learns, associating the categories with different vendors. I understand my finances better because I categorize better."

Brian Weiss, owner of Word's-worth, a writing and editing business in Santa Monica, Calif., said: "It enables me to have virtually all the benefits of an elaborate accounting system without the overhead. I get all the information that I need to make correct business decisions using Quicken, and yet the time required to maintain it is minimal."

Intuit is porting the product to personal digital assistant platforms, including Tandy Corp./Casio Inc.'s Zoomer and General Magic Inc.'s technology, but declined to comment on rumors that it is working on a version for Apple's Newton.

Upgrades are \$29.95.

Intuit Inc. is at 155 Linfield Ave., P.O. Box 3014, Menlo Park, Calif. 94026-3014. Phone (415) 322-0573 or (800) 624-8742; fax (415) 329-3689. □

Equal lets Unix run Word, Excel

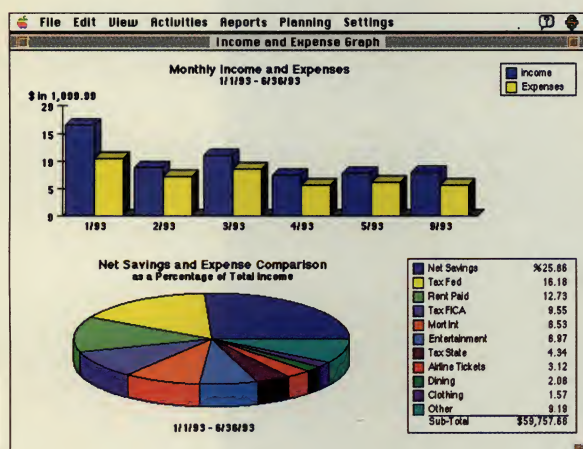
Menlo Park, Calif. — Quorum Software Systems Inc. last week shipped its adapter that lets Unix hardware run Macintosh software.

Equal, Quorum's application adapter, is available for \$695 alone, or bundled on a CD-ROM with Word and Excel for \$1,295.

Equal runs on Sun SPARC-stations and compatibles as well as on Silicon Graphics Inc. Indigo workstations. The adapter runs out-of-the-box Mac applications that appear in the Unix interface the user is running, whether it is Open Look or Motif.

Quorum said it put both Microsoft Excel and Word through a certification program to ensure complete compatibility and will certify several other standard Mac applications in the next few months. The company suggests Unix users wait for programs to be certified before attempting to run them with Equal.

Quorum Software Systems Inc. is at 4700 Bohannon Drive, Suite 125, Menlo Park, Calif. 94025. Phone (415) 323-3111; fax (415) 323-3113. □



Quicken 4 can now create color pie and bar charts to help users visually analyze data. Users can double-click on graph segments to see detail reports.

DOS TO VAX

DOS TO AXP

WINDOWS TO VAX

WINDOWS TO AXP

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OS/2 TO VAX

OS/2 TO AXP

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


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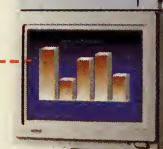
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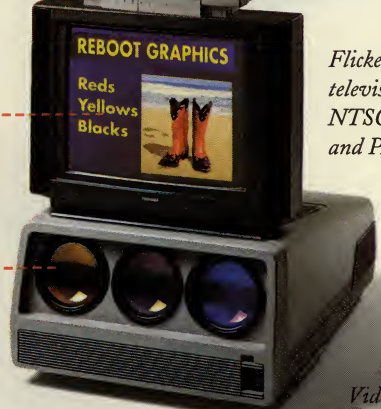
LCD displays



SVGA displays

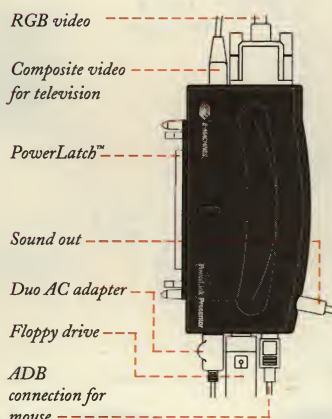


Macintosh displays



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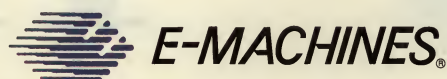
PowerLink™

Sound out

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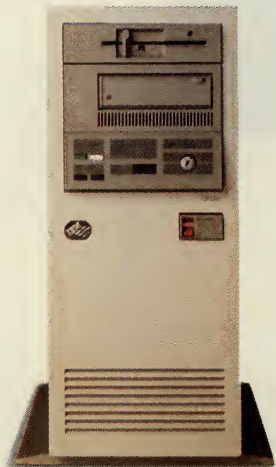
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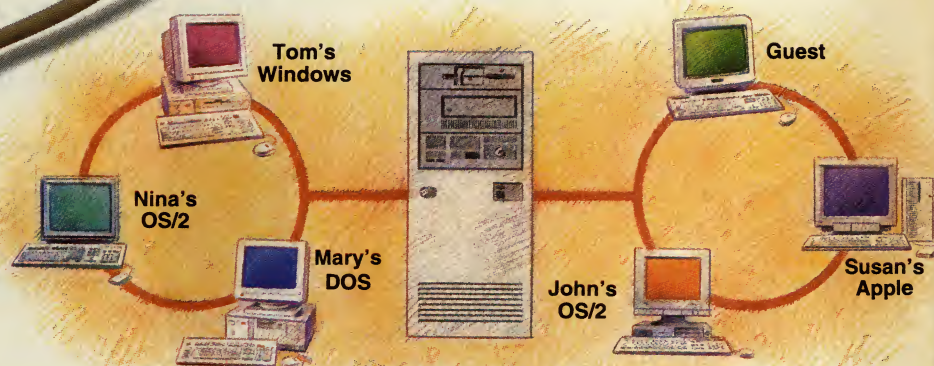
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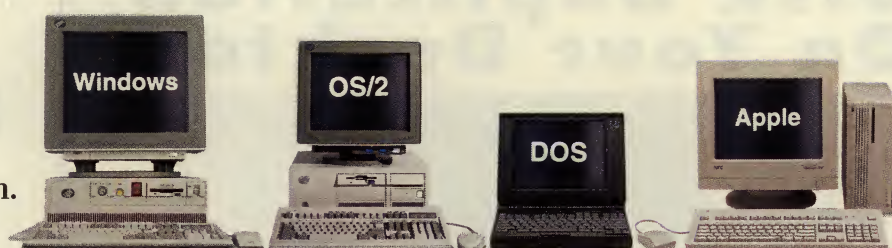
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D.C. embraces 'electronic democracy'

White House, Congress use E-mail for citizen feedback

By Roger Karraker

Washington — The Clinton administration is spearheading efforts to employ computer networks and artificial-intelligence agents to bring government in closer touch with citizens, as well as looking to modernize outdated technology in the White House.

The past month saw a flurry of announcements here about "electronic democracy," including ways for government officials to automatically read and route citizen electronic mail and electronically publish a vast array of government data.

Computer communications initiatives recently launched at the White House and throughout the federal government include:

► **An artificial-intelligence E-mail system** that will use agent software to automatically "read" and sort E-mail to the White House and speed relevant information back to citizens.

Jock Gill, President Clinton's director of electronic mail, said Massachusetts Institute of Technology's Artificial Intelligence Lab, led by Randall Davis, is contracted to create an intelligent E-mail system with AI agents

that automatically analyze incoming E-mail and filter it to appropriate staffers. Sources said an experimental, limited-function version may be tried before the end of the year.

► **A new White House Internet address** for incoming E-mail and E-mail "drops" on CompuServe, America Online and other on-line systems (see MacWEEK, June 7).

The new White House E-mail system, which Gill termed a stopgap measure until the MIT AI software is in place, is one-way: E-mail messages are tallied, printed out and a selection shown to President Clinton. Replies are printed and sent via postal mail by the White House Communications Office.

► **A new internal White House network** that will tie together the "data islands" the Clinton staff discovered when it took office in January. Gill said: "We need to move away from what we inherited here in the White House — a 1980s minicomputer, central-control metaphor with an enormous number of data islands. In its place we will install a 1990s metaphor: client-server, graphical user interface, desktop-control system, multivendor and multiplatform. ... A platform that emphasizes using groupware to allow collaborative work."

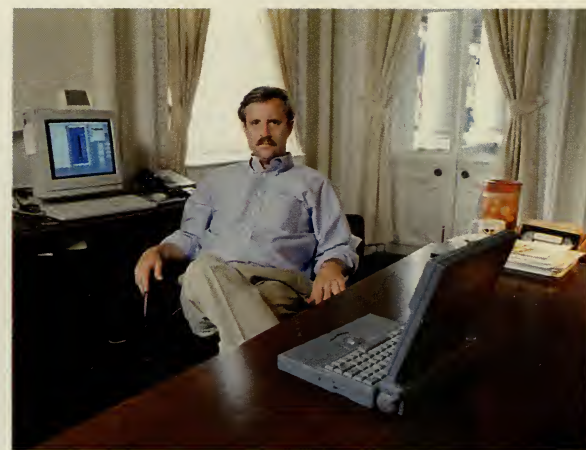
He said groupware applications that can work across multiple platforms will be installed in the White House. "There's a

tremendous need for government workers to talk among themselves *and* to talk to the citizens as well," Gill said. "One of the things that makes this so daunting is that we must create new horizontal and vertical integration simultaneously."

Gill said Mac use in the White House roughly reflects the 12 percent to 18 percent Mac penetration in computing at large. For example, Gill's boss, Jeff Eller, White House director of media relations, created a multimedia HyperCard stack of Clinton position statements during last year's campaign and reportedly uses a PowerBook as his primary computer.

► **A government electronic-publishing consortium**, ACE (Americans Communicating Electronically), composed of government agencies cooperating to provide thousands of government data files via the Internet to computer users and local "one-stop government information centers" in every city and county. Started in April by the departments of Agriculture, Commerce and Education, the consortium has grown quickly to include nearly a dozen agencies, including Congress.

► **A pilot Internet E-mail program** involving six congressmen, announced this month by the U.S. House of Representatives. After a test phase, the program is expected to be expanded to all 435 representatives. The U.S. Senate is



Jeff Eller, White House director of media relations, is among Mac users at 1601 Pennsylvania Ave., where Macs account for about 12 percent to 18 percent of the computer population.

also expected to launch a pilot E-mail program this summer. But Sen. Edward M. Kennedy, D.-Mass., is already testing the on-line waters, soliciting citizen input via Mac-based bulletin boards in his home state (see story below).

► **Electronic distribution of government materials.** Clinton this month signed S.564, the Government Printing Office Electronic Access Bill. The new law requires the GPO to make government records, starting with the Federal Register and Congressional Record, available electronically at no cost to Federal Depository Libraries and, eventually, to citizens with modems at a very low cost.

Clinton called the bill an "important step forward in the electronic dissemination of federal information," which he termed "the most effective means of disseminating all public government information." □

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Kennedy taps into constituency via E-mail

The U.S. Senate won't start experimenting with constituent electronic mail until later this year, but Sen. Edward M. Kennedy, D.-Mass., has already started his own experimental electronic-publishing program, posting information from his all-Mac Senate office to bulletin board systems in Massachusetts and getting feedback from constituents.

Kennedy's system administrator, Chris Casey, logs on regularly to several Massa-

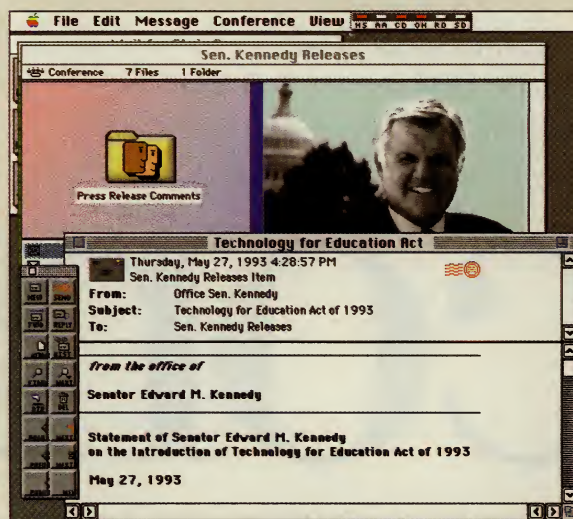
chusetts bulletin boards that use the First-Class client-server BBS software. Casey uploads Kennedy speeches, statements and news releases into special Kennedy conferences and monitors reader feedback.

Users on the FirstClass boards then download the material and often copy it to other groups and BBSes throughout New England.

Casey said FirstClass' gateway feature makes it easy to share entire conferences with other FirstClass systems.

SoftArc Inc. of Scarborough, Ontario, recently released a Windows version of the First-Class client software; the BBS runs on Mac-based servers.

The posting of Kennedy news on home-state bulletin boards serves two functions, Casey said. "We may put out an important statement on, for example, new developments in home schooling, but local newspapers may have room for only a few lines. By using a computer and calling a local BBS, any citizen can have a full copy of the statement and can comment on it. And we read those comments." — By Roger Karraker



Staffers for Sen. Edward M. Kennedy post his speeches and news releases onto BBSes in Massachusetts and monitor feedback.

QuickMail taps Reach for NetWare

By Nathalie Welch

Atlanta — To speed the acceptance of its QuickMail electronic-mail package on NetWare networks, CE Software Inc. last week announced it will bring Reach Software Corp.'s Windows client for MHS into the QuickMail family.

The initial release of QuickMail MHS for Windows, due by August, will be a repackaging of Reach's current Windows client, MailMAN for MHS. In subsequent releases, the interface of CE's Windows client for Novell Inc.'s Message Handling Service will become more like the standard QuickMail interface,

said CE President Ford Goodman during a press conference at the Electronic Messaging '93 Exposition here.

The two companies also announced plans to bring features found in Reach's WorkMAN E-mail-enabled work-flow package to the Mac platform to provide cross-platform electronic forms, rules-based routing and imaging capabilities for QuickMail MHS clients. Pricing and availability have not been determined.

QuickMail MHS for Windows will be

priced the same as CE's new QuickMail MHS for Macintosh (see MacWEEK, June 14). Both products start at \$99 for a single user and range to \$4,499 for 100 users. QuickMail MHS for Windows will be available through both Novell's authorized distribution channel and directly from CE.

CE Software Inc. is at P.O. Box 65580, 1801 Industrial Circle, West Des Moines, Iowa 50265. Phone (515) 224-1995; fax (515) 224-4534. □

New Motorola adapter lets Type II go two-way

By April Streeter

Burlingame, Calif. — Motorola Inc. last week unveiled a family of PCMCIA adapters to provide two-way messaging and local- and wide-area networking for devices with Type II slots, including Apple's forthcoming Newton personal digital assistant.

The unnamed PCMCIA cards, which Motorola's Paging and Wireless Data Group said will be available in early 1994, are based on the Type II specification endorsed by a number of vendors, including Apple.

The devices, demonstrated at a press conference here, are similar to the NewsCard one-way PCMCIA transceiver Motorola announced last fall, but they have an external antenna and are designed to offer two-way messaging.

Motorola said versions of the two-way device will be available to transmit over

either the RAM Mobile Data Inc., Ardis Co. or cellular digital packet data networks.

Also in 1994, the company will release a PCMCIA card that lets personal digital assistants or portable computers form LANs using the 2.4-GHz spread-spectrum radio frequency.

In addition, Motorola demonstrated a two-way cellular PCMCIA fax-data modem. Pricing for the PCMCIA products has not yet been set.

Motorola Inc.'s Paging and Wireless Data Group is at 1500 N.W. 22nd Ave., Boynton Beach, Fla. 33426. Phone (407) 364-2000; fax (407) 364-2519. □

UserLand kit provides more scripting power

Redwood City, Calif. — UserLand Software Inc. this month released the Scripting Starter Kit for Think C and Symantec C++. The package extends the Symantec Corp. development environments, adding functions that interact with UserLand's Frontier scripting environment.

The SSK, available on on-line services for a \$25 registration fee with a 30-day free trial, adds 15 new commands and utilities to the environments and automates the building, archiving and searching of projects.

Included scripts build lists of file paths for project tracking; delete files and libraries in a segment; change the type attributes of source-code files; and perform conversions, such as changing .c files to .cp files. Some use Apple events to select folders within Finder windows.

Full source code and Frontier Runtime 2.0.1 are included.

UserLand Software Inc. is at 400 Seaport Court, Redwood City, Calif. 94063. Phone (415) 369-6600; fax (415) 369-6618. □

Portable MO lists for \$999

Irvine, Calif. — Pinnacle Micro Inc. this week will release a 3.5-inch portable magneto-optical drive that lists for less than \$1,000.

The \$999 Tahoe 130, which offers a capacity of 128 Mbytes per cartridge, weighs 1.8 pounds and measures 4.5 by 8 by 1.4 inches. Based on a Pinnacle-developed mechanism, the drive has an average seek time of 28 milliseconds and a sustained data transfer rate of 780 Kbytes per second.

A rechargeable nickel-cadmium battery pack, which the company said provides about three and a half hours of normal use, and a travel case are available for \$199 for both. Cartridges are \$69 each.

A version of the drive for IBM PCs and compatibles lists for \$1,199.

Pinnacle Micro Inc. is at 19 Technology, Irvine, Calif. 92718. Phone (714) 727-3300 or (800) 553-7070; fax (714) 727-1913. □

DayStar NuBus card speeds up SCSI devices

By Raines Cohen

Flowery Branch, Ga. — DayStar Digital Inc. this month released DiskRunner, an accelerator for SCSI devices.

The \$699 NuBus card includes its own 68000 CPU and an optional cache to speed disk access by reading data before it is needed and writing saved data in the background.

Users need to add their own 100-nanosecond RAM SIMMs to the card's four SIMM slots for the RAM cache, which can be as large as 16 Mbytes.

The card includes both a DB-25 external SCSI port and a 50-pin internal port; users

simply unplug internal and external SCSI devices from the Mac's SCSI connectors and plug them into the card.

The card is based on the company's SCSI PowerCard, with the firmware revised so that a system extension is no longer necessary for applications to use the card. DiskRunner is also faster than the SCSI PowerCard, offering throughput of as much as 5 Mbytes per second.

DayStar Digital Inc. is at 5556 Atlanta Highway, Flowery Branch, Ga. 30542. Phone (404) 967-2077 or (800) 962-2077; fax (404) 967-3018. □

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MacEsquire navigates lawyer docs

By Lisa Picarille

Syosset, N.Y. — Synergy Marketing Communications Inc. this month shipped an update to its law-office-management application, MacEsquire, with beefed-up document-management capabilities.

At the hub of MacEsquire 4.0 is the Navi-

gator, a palette providing access to a calendar, tools for creating and routing case documents, a database for keeping legal records, an on-line legal reference guide, and facilities that help users track billable hours.

Version 4.0 can store records in its database not only of text data but also entire documents,

which can be automatically routed within a firm via the program's built-in electronic mail.

The update also lets users open a docket to view the whole court schedule. Previous versions limited users to viewing dockets only by searching the calendar for relevant docket dates.

In addition, the program offers enhanced time billing and now automatically calculates interest charged to clients.

"[MacEsquire 4.0] calculates interest within the billing. I [can complete my work] much

faster now," said Karen Yates, accounts manager at the Commack, N.Y.-based law firm of Lynne Adair Kramer.

The price of the package has gone up \$200, from \$595 to \$795. A client-server version, which requires a dedicated 68030-based server Mac, is \$795 plus \$179 for each user (with a three-user minimum). Upgrades are free.

Synergy Marketing Communications Inc. is at 11 Joseph Court, Suite 213, Syosset, N.Y. 11791-6702. Phone and fax (516) 935-9151. □

Nova adds sound editor to Kaboom! Version 2.0

By Kirsten L. Parkinson

Calabasas, Calif. — Nova Development Corp. this month shipped Kaboom! 2.0, an upgrade that adds sound-editing capabilities to the consumer sound program.

Kaboom! is a licensed version of the shareware application SoundMaster, which lets users link sounds to specific Mac functions, such as start-up and disk inserts.

Version 2.0 provides a separate application called Kaboom! Factory, which graphically displays each sound as a wave. Users can cut and paste parts of sounds; record new sounds; or add special effects such as echo, reverse and amplify.

The company also released More Kaboom!, which adds more than 100 sounds to the 150 included with Kaboom!.

More Kaboom! offers sound effects, dialogue and theme songs from several TV shows, including "All in the Family," "Bewitched," "Mr. Ed" and "Hogan's Heroes."

Kaboom! 2.0 sells for \$49.95, while More Kaboom! is \$39.95. A bundle of both products is \$69.95. Registered users of Kaboom! 1.0 can upgrade to Version 2.0 for \$15 or to both new products for \$25.

Nova Development Corp. is at 23801 Calabasas Road, Suite 2005, Calabasas, Calif. 91302. Phone (818) 591-9500 or (800) 395-6682; fax (818) 591-8885. □

Encyclopedia CD updated

Carlsbad, Calif. — Compton's NewMedia Inc. will ship an updated version of its Multimedia Encyclopedia in late July.

The \$395 CD-ROM, now called Interactive Encyclopedia, features Virtual Workspace, which makes a user's view of the screen part of a larger work area. A map diagrams the user's location in the Virtual Workspace. Scrolling through the Workspace allows users to go from open article to open article.

A searching system called SmartTrieve lets users find information by posing direct questions, such as "Who killed President Lincoln?"

Interactive Encyclopedia includes the 65,000-word Webster's Intermediate Dictionary. The encyclopedia itself has 33,700 entries, including 50 QuickTime movies, 25 minutes of sound and an atlas with a map for each continent.

Owners of Compton's previous electronic encyclopedia can upgrade for \$149.

Compton's NewMedia Inc. is at 2320 Camino Vida Roble, Carlsbad, Calif. 92009. Phone (619) 929-2500; fax (619) 929-2577. □

THIS SHOULD GIVE YOU OF WHY WE CREATED A

The image you see over there started out attached to the image you see over here. But as this document made its way down to the printer, the Macintosh it was created on recognized a small problem: 11 x 17 pages can't fit through 8½ x 11 printers.

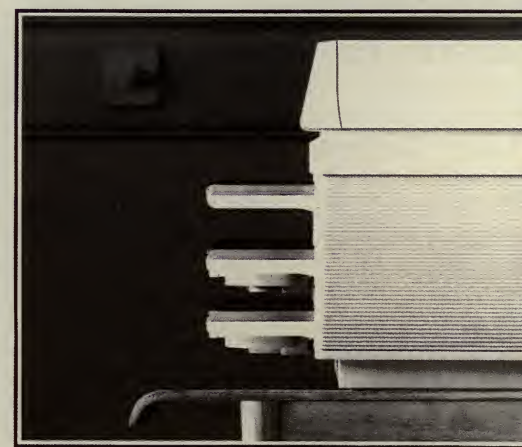
And so, out came the electronic scissors.

Now, if you're like many Macintosh users, you know all about this routine. And you know how it feels to walk into a meeting with a layout that contains hours of blood, sweat and tears,

and a fat strip of tape right down the middle. Enough said.

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with another, only to have your neighbor repeat the process two minutes later. And for

*This service, provided by contract service providers, is specific to hardware products and may not be available in certain geographic locations. Consult the Compaq Customer Support Center for further details. ©1992 Compaq Computer Corporation. All Rights Reserved.

Scriptwriting Tools update adds new templates

By Lisa Picarille

Bloomington, Minn. — Writers generating scripts for feature films, television or corporate presentations can now concentrate on their writing and leave formatting of scripts to Scriptwriting Tools 2.0 for the Macintosh.

Designed as an add-on package for users of

Microsoft Word, Scriptwriting Tools 2.0 is a set of 10 templates that follow the required formatting guidelines for writing scripts for a variety of mediums, including film, television and multimedia presentations.

Version 2.0, developed by Morley & Associates, does not require a macro pro-

gram, unlike the previous release. It adds two new templates for creating presentations and storyboards and now provides customizable glossary lists of character names and place names.

The company is offering the new version for \$79 (\$59 through Aug. 31). Current owners can upgrade free.

Morley & Associates is at 120 E. 94½ St., Bloomington, Minn. 55420. Phone (612) 884-3991; fax (612) 888-2810. □



News

BRIEFS

Transparent now teaches for less

Hollis, N.H. — Transparent Language Inc. has halved the price of its foreign-language training package.

The package, called Transparent Language, includes both a disk and audio tapes and has been reduced from \$139 to \$69.95. The package teaches French, Latin, German, Italian and Spanish.

Transparent Language Inc. is at 9 Ash St., P.O. Box 575, Hollis, N.H. 03049. Phone (603) 465-2230 or (800) 752-1767; fax (603) 465-2279.

Azalea app creates bar codes

Seattle — Azalea Software Inc. this month shipped software that generates and prints Postnet bar codes.

POSTools creates the bar codes as a Type 1 PostScript font. The \$59 program can make bar codes for a standard five-digit ZIP code, a ZIP+4 and the new 11-digit Delivery Point Barcode.

Azalea Software Inc. is at P.O. Box 16745, Seattle, Wash. 98116-0745. Phone (206) 937-5919 or (800) 482-7638; fax (206) 937-5919.

After Hours bundles dino story

Van Nuys, Calif. — Succumbing to dinosaur-mania, After Hours Software is bundling the \$19.95 Jurassic Park Expanded Book from The Voyager Company of Santa Monica, Calif., with its bundle of Touchbase Pro and Datebook Pro.

While supplies last, users can get the electronic, illustrated version of Michael Crichton's novel when they purchase After Hours' \$149.95 bundle.

Registered users can upgrade to the new Pro versions for \$49.95 and get Jurassic Park.

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Management

Systems integrators: How to know when to use them

Consultants can provide users with custom software and expert advice — for a price.

By Larry Stevens

There are three prerequisites to using the Mac for high-end functions such as database management, pre-press and graphics: The Mac has to be powerful enough, the price has to be right, and users have to have sufficient knowledge to shop for and configure a system. Increasing power and dropping prices have allowed the Mac to meet the first two criteria. But many companies, finding themselves in a position to use Macs for complex operations for the first time, don't have the needed expertise for the job. One solution may be found in systems integrators.

"The power is now readily available, but the expertise isn't," said Mark Goren, owner of Point to Point, a Cleveland-based desktop publishing and software development company. As an experienced Mac user, Goren said, he can usually make his own buying decisions. But when he is stumped or needs some ancillary service such as training, he turns to Publishing Solutions Inc., an Akron, Ohio-based systems integrator specializing in desktop publishing. "For advice on high-end issues, systems integrators are the only type of company in the Mac sales or education pipeline that can answer our questions," Goren said.

Types of integrators. Systems integrator is a somewhat fuzzy term applied to companies that offer one or more of the following services:

- ▶ Selling turnkey systems made up of hardware and off-the-shelf

software. These companies often make part or all of their profits on product markup, which is usually higher than that taken by less service-oriented computer dealers. The markup percentage depends on the size of the order. For sales of more than \$50,000, the markup may be equal to that of a local computer retailer but higher than that of a mail-order dealer. For smaller orders, the integrator may charge full retail price, which is usually more than you'd pay a dealer who offers less service.

Most will charge a fee if they provide consulting services and the customer doesn't buy the equipment from them. Additionally, many also provide ancillary services such as training and support, for which they may charge a fee. These companies often, but not always, specialize in one industry.

- ▶ Selling turnkey systems that include industry-specific or custom-developed software. The primary function of these systems integrators is to market their software.

To do so, however, they sell the necessary hardware. These companies typically set up the system and offer training and support as a part of the package. Because this type of integrator provides a software product that cannot be purchased elsewhere, it is usually impossible to determine how much extra you're paying for the hardware, software or support.

- ▶ Consulting services only. Systems integrators that specialize in large integrated systems that include mini and mainframe prod-



BOB RIHA

Buddy Moffet, manager of John Hinde Curteich, a picture-postcard company, went to a systems integrator specializing in graphics after each dealer he saw gave him very different advice.

ucts from such companies as IBM Corp., Digital Equipment Corp. and Hewlett-Packard Co. help in the process of specifying, purchasing, installing and training. In a sense, the systems integrator becomes a temporary department of the client company, often setting up an office and having one or more people work at the client site each day.

These systems integrators charge a fee based on the magnitude of the job. Few projects go for less than \$30,000, and some can cost more than \$100,000. This type of integrator is rarely used at either Mac or DOS sites.

While there are different kinds of systems integrators, Goren said: "[The good integrators] don't just understand computers, they're also familiar with your business. By contrast, computer retailers are familiar only with hardware and, to a lesser extent, software."

Starting from scratch. Buddy Moffet, manager of John Hinde Curteich Inc. of Westlake Village, Calif., discovered the hard way that computer retailers may not be the best source to help build complex systems. His company makes picture postcards and, until recently, depended on service companies for the pre-press work. Moffet decided he could save money and get better control over quality and schedules by bringing a Mac-based pre-press system in-house. So he boned up on the subject by reading books and magazines and then visited computer stores.

But he discovered that "everyone gave me different advice. I'd even get different advice the second time I visited the same dealer," he said.

Another problem, according to Moffet, was that dealers didn't always have the right equipment to

do an adequate demonstration.

"They'd show me a function that took 45 minutes and say, 'Your system will do the same thing much faster.' I'd ask them how much faster, but they couldn't tell me."

Finally, Moffet met with James Bradley of The Bradley Group, a Los Angeles-based systems integrator specializing in graphics and desktop publishing. According to Moffet, Bradley "spoke my language, knew the questions to ask and was able to suggest a system quickly."

Changes in the making.

Systems integrators are also often called when a company is making a major change. Unlike Moffet, Tom Hudson, director of production systems at Hitchcock, Fleming & Associates, also in Akron, was far from inexperienced. His company, a full-service photographic and typesetting house, had three previous typesetting systems. But they all were single-vendor systems.

His new system would take the best from different vendors: an Agfa imagesetter, a Sun Microsystems server and Macs at the desktop. He said that Agfa and Sun would send representatives to a planning meeting, "but we needed someone to represent the Mac side."

Hudson said he felt that a computer retailer probably wouldn't have the expertise to suggest a system that could work with Agfa and Sun products. Instead, he brought in Publishing Solutions. "Because they're experts in publishing applications, they're very familiar with Sun and Agfa," he said. "We needed someone who had more of an industry slant rather than a strict Mac slant."

Vertical solutions. When Medical Video Productions of See *Systems integrators*, Page 16

Three steps to success with systems integrators

- ▶ **Selecting one.** According to users and integrators, the key factor to look for in a systems integrator is familiarity with your industry. To lessen the learning period the integrator may have to go through, Mark Goren, owner of Point to Point, a Cleveland desktop publishing and software-development company recommends that users "find a company [that] can speak your language."

- ▶ **Working with one.** Most successful system-integration projects have one internal staff person who spends a significant part of his

or her time with the project. With large or complex projects, it isn't always possible to conceive of every issue that might arise ahead of time. If every change has to go through a complex chain of command, minor problems can cause major delays.

- ▶ **Keeping one.** Most users advise building a long-term relationship with a systems integrator. The trend in today's business world is toward consistent teamwork. Each time a systems integrator works on a project at a particular company, the time spent in the initial consultation is usually shorter.

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Systems integrators

From Page 14

St. Louis needed a circulation control system, it didn't have the in-house resources to program one itself. So it purchased from Sapphire Systems Inc. of Minneapolis a hardware and software package called InHouse Subscription Manager, developed with 4th Dimension. Sapphire Systems set up the system, installed the software and helped Medical Video Productions

install its subscriber list and customize the system. Cindy Weinstein, graphics coordinator at Medical Video Productions, said: "We had a very specific requirement. We didn't want to try a generic solution. This was worry-free. For a set price, we'd get a solution that would work."

Department-store approach. While most systems integrators are hired to provide turnkey systems, some are occasionally

called upon for very specific tasks, such as training or consulting, on an as-needed basis. Consistently using the same systems integrator builds a relationship with a company that knows your problems and goals and can be called upon to provide assistance when it is required.

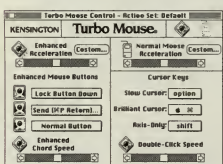
Point to Point's Goren said he often uses Publishing Solutions on an as-needed basis. "It's helpful to have someone we can call upon on short notice and who doesn't have

to spend a lot of time getting up to speed on our operations," he said.

Goren added that his relationship with Publishing Solutions is also helpful when a customer wants to set up a desktop publishing operation that can work well with Point to Point's pre-press system. "Like it or not, anyone we recommend to a customer will reflect on us," Goren said. "We need to recommend someone we can be sure will do a good job." □

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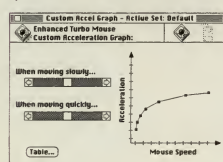


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All of which led Macworld to say, "If you're shopping for a trackball, Turbo Mouse 4.0 deserves first consideration."

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Calendar of Events

JUNE

29-July 1: Mactivity, San Jose, Calif. Three-day conference and exposition on Macintosh networking. Contact Winehouse Computer Co. at (408) 354-2500 or (800) 798-2928; fax (408) 354-2571.

29-July 1: PC Expo, New York. Personal computer exhibition and conferences spotlighting fundamentals, hardware, management, software, connectivity, multimedia and Windows. Contact Bruno Blenheim Inc. at (201) 346-1400 or (800) 829-3976; fax (201) 346-1602.

JULY

8-10: MacShow, Chicago. General Mac trade show and conference. Contact The Show Management Co. Inc. at (215) 957-9111 or (800) 622-7469; fax (215) 957-9497.

11-16: National Conference on Artificial Intelligence & Conference on Innovative Applications of Artificial Intelligence, Washington D.C. Combination of shows designed to facilitate the transfer of science to practical applications while ensuring that the needs of business and government organizations are heard by scientists. Contact the American Association for Artificial Intelligence at (415) 328-3123; fax (415) 321-4457.

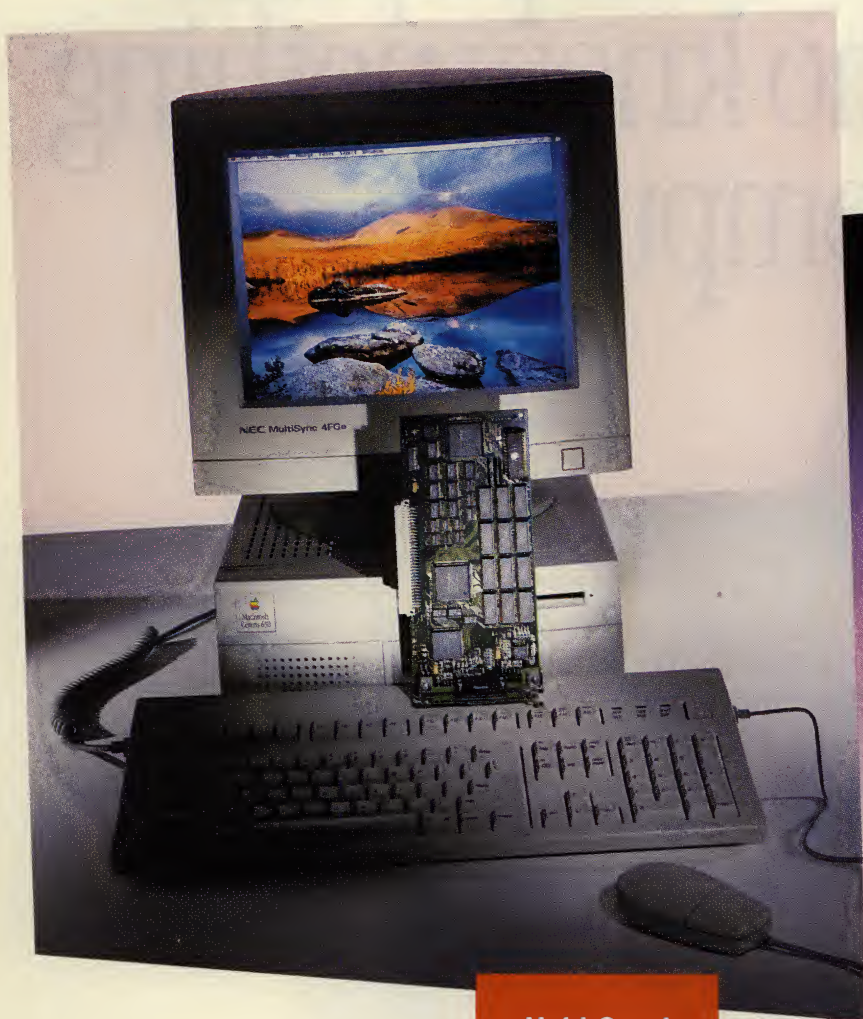
12-15: Image World, Dallas. Combination of two expositions and seminar programs — Video Expo and the CAMMP (Computer Animation, Graphics, Multimedia and Presentation) Show. Contact Knowledge Industry Publications at (914) 328-9157 or (800) 800-5474; fax (914) 328-9093.

21-23: Memory Expo, Santa Clara, Calif. Information, exhibits and user round tables on the latest in memory-card technologies. Contact Memory Expo at (303) 220-0600 or (800) 525-9154; fax (303) 770-0253.

22-23: QuarkXPress Users International Conference, New York. Annual show with two days of conferences and seminars, ranging from basics to complex applications. Contact QUI at (603) 898-2822; fax (603) 898-3393.

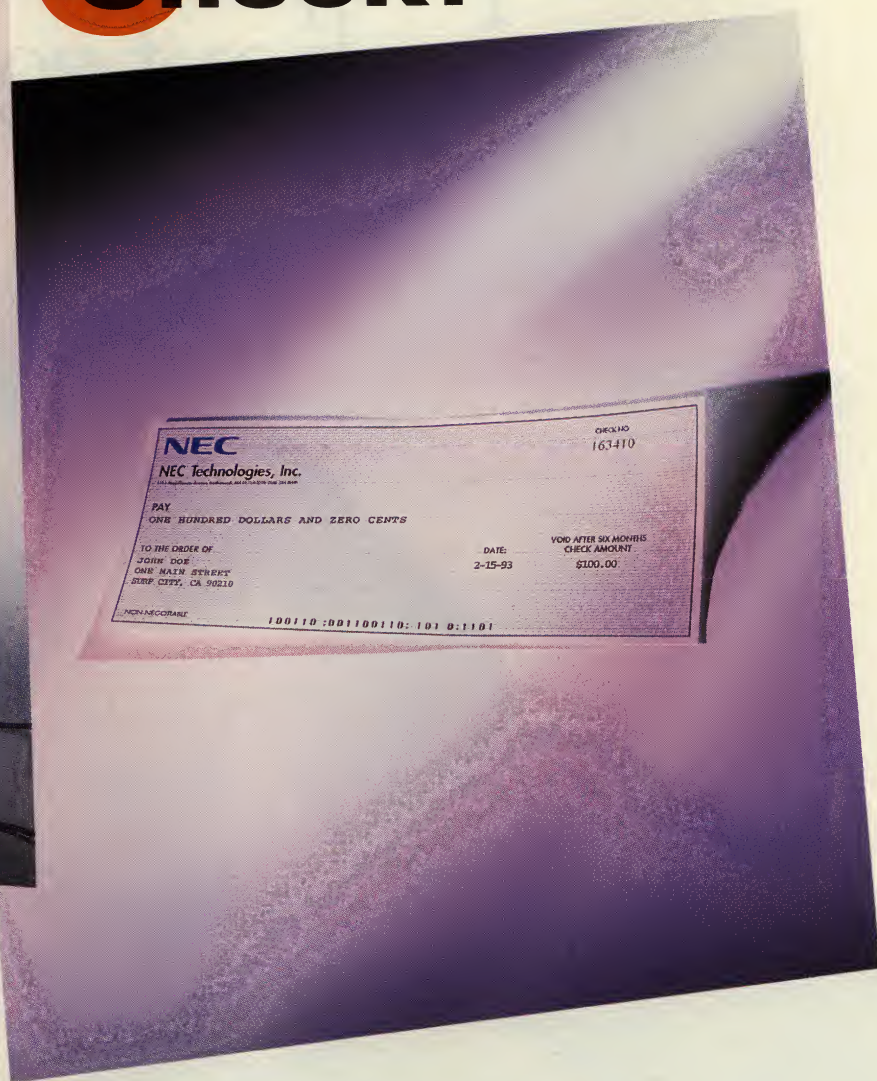
Please submit notices of conferences, trade shows and other Mac-related events to Calendar, MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105, or fax to (415) 243-3650. No training or educational seminars, please.

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See your NEC dealer or call 1-800-NEC-INFO. For information via fax, call NEC FastFacts™ at 1-800-366-0476, request document 11 and 349701. If you're thinking of buying a 24-bit color card from someone else, you really *do* need a Reality Check!

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Why PowerBook is popular with people who know nothing about computers.

Always in touch. By adding AppleTalk Remote Access software and an internal fax/modem, users stay connected to all the network resources.

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Fits any business. PowerBook can run thousands of Macintosh® programs and, with software like SoftPC, thousands of MS-DOS programs, too.

Highly compatible. With the built-in Apple SuperDrive™ and the right software, PowerBook can read from and write to MS-DOS disks.

There are literally hundreds of technical reasons why our Apple® PowerBook™ computers are the country's best-selling notebooks. But the biggest reason isn't technical at all.

That is, anyone can pick up a PowerBook and get things done right away. There's no need to learn strange commands or deal with confusing system configuration files, as there is with other notebooks.

And because PowerBook computers are so easy to use, they get used

more often. Which can help make people noticeably more effective in their work and more successful in reaching their goals.

No matter how far PowerBook users travel, they can easily retrieve files from their desktop computers. Access information from the company database. Exchange e-mail messages. Even send and receive faxes.

Now people in every kind of business are using PowerBook to make dramatic leaps in productivity. They're finding it doesn't matter how much they know about computers — as long as they have the right computer.

Why PowerBook is popular with people who know everything about computers.

An easy decision. PowerBook is easier for a company to set up and easier for people to use — so it's easier to support.

Fits into the office. The optional PowerBook/DOS Companion[®] package provides software and connectors to work with MS-DOS files, printers and displays you already own.

Tailored to everyone. PowerBook computers are the affordable way to give a full-featured notebook to everyone in the company — from the sales force to the CEO.

A range of choices. Four models with built-in floppy drives offer a choice of screens (black-and-white, gray-scale or color), video-out capability and processor speeds. Two PowerBook Duo[™] models turn into expandable desktop systems when used with the Duo Dock.


Simple connections. PowerBook has a full set of built-in ports and easy-to-use communication software, so users stay connected wherever they go.



PowerBook has also built a large following among the world's most discriminating computer audience: people like you, whose business it is to know computers inside and out and who make the hard decisions about their companies' information systems.

That's because, unlike other notebooks, PowerBook is more than a miniaturized version of a desktop computer. Its award-winning design acknowledges that there is a fundamental difference between the way people work at their desks and the way they work outside of the office.

With its extraordinary ease of use, PowerBook takes client-server computing to a new level of simplicity and mobility. From any distance, people can use innovations like AppleTalk[®] Remote Access for easy and secure access to the office network resources. And because PowerBook is less complicated than other notebooks, it demands far less support.

For all these reasons, more and more companies are depending on PowerBook. After all, you don't have to be an expert to recognize this kind of power. The power to be your best. **Apple** 



OracleWare to bundle Oracle7, NetWare OS

By Margie Wylie

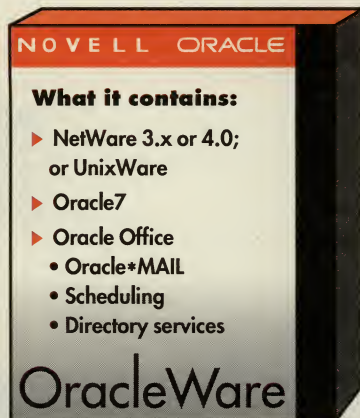
San Francisco — As part of a campaign to remake itself into more than a database company, Oracle Corp. last week announced plans to bundle its little-known electronic-mail and scheduling software and its popular Oracle7 database with Novell Inc.'s NetWare.

The bundle, to be known as OracleWare, will include the NetWare network operating system from Provo, Utah-based Novell, and NetWare Loadable Module versions of the Oracle7 database and Oracle Office, the two companies revealed at a press conference here. Mac NetWare users will be able to access Oracle7 databases through SQL*Net and SQL queries as they do now.

Oracle Office is the first of several products Oracle is developing in hopes of shedding its image as a one-product company, according to Tim Negrin, the company's vice president. Oracle Office is shipping in limited release for Sun servers and Windows clients, but the company hasn't formally announced it.

The Oracle Office suite includes the next generation of the company's E-mail product, Oracle*MAIL 2.0, which offers directory services, limited text-retrieval services and support for graphical client interfaces. Oracle Office also includes calendaring and group scheduling.

The first release of OracleWare,



due in September, will run on NetWare 3.x servers and will offer only limited integration between Oracle Office and NetWare.

For instance, Oracle*MAIL 2.0's directory services will swap updates with NetWare's directory services, but the two won't share one directory. That sort of integration will come next year in a version for NetWare 4.0 servers.

The first release will include support for Windows clients, but Macs may have to wait because the client is still under development.

The UnixWare edition of OracleWare, which works with the Unix version of NetWare, will also ship in September.

Oracle Corp. is at 500 Oracle Parkway, Redwood Shores, Calif. 94065. Phone (415) 506-7000; fax (415) 506-7200. □

Apple updates AppleShare, net drivers

By Robert Hess

Cupertino, Calif. — Apple this month released upgrades for AppleShare 3 and the Network System Installer.

AppleShare 3.0.2 improves compatibility with third-party server management and backup software and boosts performance of servers accessed through slow connections, such as AppleTalk Remote Access (see MacWEEK, May 17).

Network System Installer 1.3.2 fixes a wide array of bugs in Apple's networking software. NSI updates AppleTalk to Version 58.0.2, which fixes a bug in Version 58 that became apparent when users switched

between network connections. The AppleTalk revision also improves support for AppleShare Pro server software and Shiva Corp.'s Dial-In Access extension.

In addition, with the upgrade a PowerBook user who sets the network connection to Remote Only will not find the connection automatically setting itself to LocalTalk when awakening from sleep.

The NSI upgrade boosts performance of Apple's EtherTalk drivers and fixes a bug related to communications with DECnet products.

Both upgrades are on AppleLink in the Apple SW Updates section of the Software Sampler Folder. □

ENS for NetWare upgrade leaves Mac users in lurch

By April Streeter

Westboro, Mass. — The first upgrade to Banyan Systems Inc.'s directory services package for NetWare shipped last week, but Mac clients continue to go unsupported.

Banyan launched Version 1.1 of ENS for NetWare, the \$3,995 server software that gives users of Novell Inc.'s NetWare access to StreetTalk III directory services. Version 1.1 adds support for NetWare 4.0, the latest version. But while Banyan cited Mac client support as one of the upgrade's features, the two products necessary to give NetWare Mac users StreetTalk services won't ship until the third quarter of this year.

The first missing product, the \$1,995 ENS Macintosh Client Option, will consist of an AppleTalk stack and a module to let Mac Net-

See Banyan, Page 22

News Analysis

Harvest strategy reaps IS data

By Mitch Ratcliffe

Information systems managers harnessed to aging mainframes and nonrelational database-management systems are turning to distributed-computing architectures to place more data in the hands of desktop computer users. Apple is embracing that change in approach with its "information-harvesting" strategy, which promises to help companies more easily reap the data they sow.

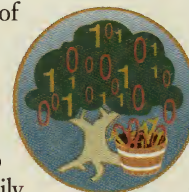
Apple's approach to distributed computing, which is part of its VITAL blueprint, places a heavy emphasis on the workgroup or department within an organization. Data maintained on a mainframe is doled out to interim servers, which provide data access to individual groups rather than requiring users to send requests to the mainframe — or to the IS staffers who manage the mainframe and can take weeks to

return a custom report. Once data has been distributed to workgroup servers, users can apply the power of desktop data query and analysis tools, such as Brio Technology Inc.'s DataPivot and Objective Software Inc.'s SpreadBase, to sculpt answers to questions more quickly. The strategy may even let users ask questions that were previously beyond the capability of the system, according to Apple.

The VITAL vision is a tempting one, IS managers said. Information harvesting is an appropriate response to the need for faster reporting in a much-accelerated business environment, according to managers, but they said the distribution of data across numerous interim servers can lead to data management and integrity problems.

The most important issue IS professionals need to address when first

See Harvest, Page 24



GraceLAN Net Manager to become selective

In Document mode, 3.0 scans select devices

By April Streeter

Austin, Texas — Technology Works Inc. this week will announce a revision of its GraceLAN network-management software that will let users gather information about specific devices in an AppleTalk zone.

GraceLAN Network Manager 3.0, scheduled to ship next month, will let a network manager scan both an entire network zone and

only selected devices and have scanned information saved for later review. The previous version of the product allowed scanning only of the entire multizone network, and scans could not be saved.

"When you've got 300 zones to choose from, it's very tedious to have to find and select a zone and then scan the thing," said beta-tester Clay Miller, manager of the technology resource center at Motorola Inc.'s semiconductor division here. "Now we'll be able to customize searches so only relevant devices are scanned."

Version 3.0 features include:

► **Document or Browser.** In Browser format, GraceLAN scans an entire zone. In Version 3.0's Document view, the user selects devices, schedules when the scan will be done and saves scanned data. An unlimited number of documents can be saved.

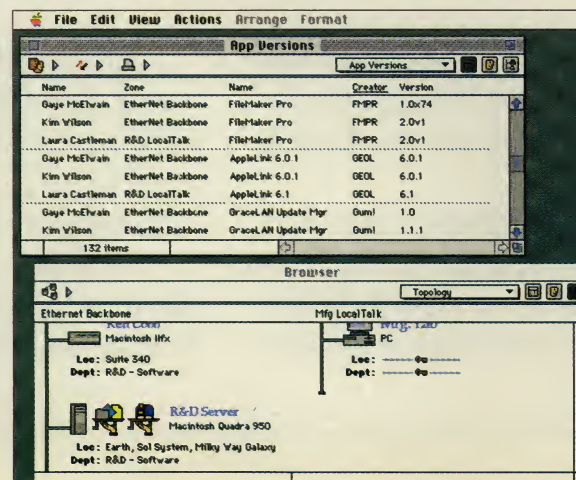
► **More views.** Users view data in columns, by user or in a graphical topology. Version 3.0 will let managers customize views by adding data fields.

► **Responder.** Administrators will be able to change or update each user's GraceLAN Responder information. They will also be able to restart users' Macs from their desktops. Updating other applications over the network requires GraceLAN Update Manager.

Technology Works has abandoned GraceLAN Network Manager's three-tiered pricing plan. Instead, it is now offering a single-administrator, unlimited-user version for \$795. All upgrades are \$149.

Technology Works Inc. is at 4030 Braker Lane W., Suite 350, Austin, Texas 78759. Phone (512) 794-8533 or (800) 688-7466; fax (512) 794-8520. □

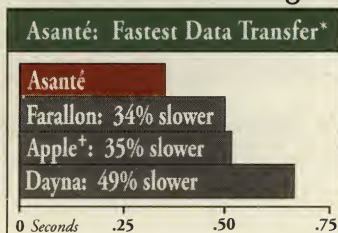
In Document mode, shown at top, GraceLAN 3.0 users can gather and save data on specific AppleTalk devices in a zone. Browser mode, bottom, scans an entire zone but will not save gathered data.





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*32K file transfer between a Quadra 950 and Quadra 700. Source: Recommended Test Labs, Inc. 1993. Call Asanté for complete report.

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The MacCon+ LC III is just the latest innovation from the only networking company with an Ethernet solution for every Apple CPU. Asanté's family tree includes the FriendlyNet[™] line of exter-

nal adapters that connect Macs with built-in Ethernet, such as the Centris 610, 650, and the Quadra 800, to Thick, Thin and 10BaseT networks. We also offer the new Mini EN/SC, the smallest and lightest SCSI-to-Ethernet adapter in the world. It's the perfect space-saving networking solution for any Macintosh without available expansion slots, and was specifically designed for portable use with the PowerBook line.

Apple CPU	Asanté Solution
PowerBook 165c	Mini EN/SC
Mac LC III	MacCon+ LC III
Centris 610 & 650 Quadra 800	FriendlyNet Media Adapters

So if you have Apples that are ripe for high-speed networking, and you want to get all your Ethernet solutions from a single source, **call Asanté, the only company capable of networking the entire orchard,**
at 800.662.9686,
extension 201.

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Cypress upgrades net fax software

New version requires fewer net resources

By Nathalie Welch

Sunnyvale, Calif. — Cypress Research Corp. this week will deliver an upgrade of its network fax package that handles more users and requires fewer network resources than previous versions.

FaxPro II 2.2, a software-only package priced at \$550, no longer requires a dedicated Mac and can now be installed on the same machine as AppleShare. By residing on the file server, network traffic between the file and the fax servers is reduced.

The upgrade also lets more users take advantage of FaxPro II network fax services by adding an Auto Mount feature that automatically

mounts and dismounts the file server on the user's workstation when sending a fax. The feature is of particular benefit for users of System 7's file sharing, which prevents more than 10 users from logging on.

While previous versions worked only with modems from Supra Corp., FaxPro II 2.2 can be used with more than 20 third-party modems, including devices from Global Village Communication Inc., PSI Integration Inc., Mass Microsystems Inc. and Hayes Microcomputer Products Inc.

Additional upgrade features include customizable cover sheets, automatic background fax conversion on the fax server, automatic resend, and an InstaFax message feature that lets users send a fax consisting of just a cover sheet and text.

Administrative improvements include a simpler installer and an improved print driver.

Upgrades are \$49.95.

FaxPro II 2.2 can be purchased bundled with modems. The \$950 FaxPro II 14.4 and the \$850 FaxPro II 9600 ship with 14.4-Kbps and a 9,600-Kbps modems, respectively.

Cypress Research Corp. is at 240 E. Caribbean Drive, Sunnyvale, Calif. 94089. Phone (408) 752-2700; fax (408) 752-2735. □

Coactive connectors hook up PCs via LocalTalk and parallel ports

By Leonard Heymann

Belmont, Calif. — Coactive Computing Corp. last week delivered plug-and-play connectors to let IBM PCs and compatibles communicate with Macs via LocalTalk.

The \$149 Connector, available with DOS or Windows software, is a two-port device that has a 32-bit processor, 256 Kbytes of RAM and the AppleTalk protocol stack. Coactive also sells a small, \$29 v-shaped Connector for Macintosh that is similar in function to Farallon Computing Inc.'s PhoneNET adapter but has terminated ports.

The larger Connectors plug into the parallel ports of PCs, while the smaller devices plug into the LocalTalk ports of Macs. Nodes are tied together with unshielded twisted-pair cabling. The larger Connector also includes a parallel port to add an additional printer.

Macs access shared files through

the Chooser. On the PC side, DOS users see shared files in volume directories, and Windows users see them through the File Manager.

Coactive networks can have up to 32 devices.

One beta tester rated the Connector ahead of other cross-platform products he's tried, including Sun Select Inc.'s TOPS and Farallon's PhoneNET PC.

"Coactive's Connector is the easiest to install," said beta-tester Jim Ross, media specialist at Nikon Precision Inc., based here. "It's the most transparent to the user, and it takes much less RAM. I'm extremely impressed with it." Ross said he easily added 10 PCs to an 80-node LocalTalk network.

Coactive Computing Corp. is at 1301 Shoreway Road, Suite 221, Belmont, Calif. 94002. Phone (415) 802-1080; fax (415) 593-9304. □

Microsoft Mail users get MacX.400 link

By Nathalie Welch

Atlanta — At the Electronic Messaging '93 Exposition here last week, StarNine Technologies Inc. shipped an electronic-mail gateway linking Microsoft Mail users to Apple's MacX.400 message servers.

Mail*Link for MacX.400/MS, with prices starting at \$595 for 10 users, provides a direct connection between Microsoft Mail for AppleTalk Networks and Apple's X.400 MTA (Message Transfer Agent). The gateway, which resides on the MTA server Mac, is compatible with the forthcoming Version 1.1 of MacX.400, which lets users send X.400 mail over TCP/IP networks (see MacWEEK, June 7).

The gateway aliases full Microsoft Mail user names into any commonly used X.400 O/R (originator/receiver)

name format. Enclosure formats include AppleSingle, MacBinary and data fork-only. Bidirectional return receipts are supported, and administrators can determine when the gateway polls the X.400 server.

Additional Mail*Link for MacX.400/MS user packs are \$995 for 20 users, \$1,995 for 50 users and \$2,950 for 100 users. Site licenses are \$12,995. Apple's MacX.400 1.1 is \$4,950, and the MacX.400 SD single-connection server is \$2,950.

StarNine plans to ship its Mail*Link for MacX.400/QM gateway early next year to connect users of CE Software Inc.'s QuickMail to Apple's MacX.400.

StarNine Technologies Inc. is at 2550 Ninth St., Suite 112, Berkeley, Calif. 94710. Phone (510) 649-4949; fax (510) 548-0393. □

Banyan

From Page 20

Ware clients use a three-part log-on to see all the devices on a network, whether they are connected to Banyan Vines or Novell NetWare servers.

Banyan said that NetWare Macs will require only a single log-on to gain access to NetWare and Vines volumes. The single log-on is currently not available to Mac clients on a Vines network, but Banyan said after the ENS package ships, it will upgrade Vines clients with the same functionality. NetWare Macs will also be able to search for any network-connected devices using StreetTalk's Directory Assistance feature.

The second required-but-not-shipping product is ENS Mail for Macintosh. It will include graphical software that will let NetWare Mac clients use Banyan's Intelligent Messaging service and will be priced at \$895 for a single-server, unlimited-client version.

Banyan said that later this year it will ship a set of application programming interfaces that support the forthcoming AOCE (Apple Open Collaboration Environment).

Banyan Systems Inc. is at 120 Flanders Road, Westboro, Mass. 01581. Phone (508) 898-1000 or (800) 828-2404; fax (508) 898-1755. □



Gateways BRIEFS

MaCNet reduces prices on Ethernet products

San Jose, Calif. — MaCNet, a division of CNet Technology Inc., recently cut prices on a number of Ethernet products.

The NU-460 NuBus adapter card with thick, thin and 10BASE T Ethernet ports is now \$149. The SE-470, a similar three-in-one card for the SE/30, is \$189. The LC-480, for the Mac LC series, offers thin and 10BASE T connections and is \$199. All three cards were priced at \$229.

The eight-port 8CON-8800 hub is now \$299, down from \$395. A 12-port model, the 12CON-8000, was \$795 and is now \$699.

MaCNet is at 2319 Zanker Road, San Jose, Calif. 95131. Phone (408) 954-8888; fax (408) 954-8866.

Impulse Technology now Spectra Systems

Alpharetta, Ga. — Impulse Technology has reorganized as Spectra Systems Corp., and it is boosting the price of its Fiber Distributed Data Interface NuBus cards while upgrading the adapter's file transfer software.

Impulse, in business since 1990, ceased operations three months ago, but a new investor with a fresh infusion of cash allowed the company's product line and employees to be regrouped.

Spectra will sell the Spectra NSF, a single-attached FDDI card for NuBus Macs for \$2,159. Previously, the card sold as the Spectra NB card for \$1,999. The company also said that Ditto, a Mac file transfer utility that ships with the card, has been tweaked to provide improved security and let a user both receive and fetch files from designated folders on another Mac's hard drive. It supports the new MacLPX client software from Novell Inc.

Spectra Systems Corp. is at 2001 Westside Parkway, Suite 125, Alpharetta, Ga. 30201. Phone (404) 410-7803; fax (404) 410-7815.

Wolf Creek pares paging program prices

Jensen Beach, Fla. — Wolf Creek Technologies Inc. recently endeavored to expand the audience for its QuickMail paging software by cutting prices and adding versions for small groups of users.

A 20-user license for QM-Page is now \$995, down from \$1,995. The new packages support 10 users for \$595 and five users for \$325. QM-Page lets users send messages to pagers directly from CE Software Inc.'s QuickMail.

The latest release of QM-Page, Version 3.0, lets users send messages to multiple paging systems and splits up QuickMail memos that exceed the maximum word count of a paging message.

Wolf Creek Technologies Inc. is at 1274 N.E. Business Park Place, Jensen Beach, Fla. 34957. Phone (407) 334-0448; fax (407) 334-2303.

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auto-sensing technology, there are no switch settings to change when you switch cable types.

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Dayna
Macintosh Networking Specialists

Harvest

From Page 20

implementing the Apple strategy is what kind of information is suited to the harvesting paradigm: live data, real-time data or historical records?

Ella Fitzgerald revisited.

Like viewers of the 1970s-era Memorex commercial in which a recorded voice shattered a glass, IS managers cannot always distinguish between live and historical data.

Data's character is determined by the lag time between when it is collected and when it becomes available for analysis. In the past, because data was filtered through the hands of IS programmers, historical data was traditionally thought of as last month's numbers. Today, with the dawn of real-time data collection and storage systems, history is yesterday's business.

"We're as 'legacy' as you can get, and we're spending a lot of time doing data modeling of business entities, people and organizations," said Ted Toler, senior applications analyst at Union Carbide Inc.'s Technology Center in South Charleston, W.Va., which is in the midst of a reorganization. "We're working with the root pieces of information around which a business runs. Some of that so-called legacy data isn't historical; it's live.

"If it's information that is historical, we can move it right into [Blyth Software Inc.'s] Omnis," Toler said. Union Carbide has applied an information-harvesting strategy to historical data in an IBM Corp. IMS mainframe. But Union Carbide bypasses interim servers, preferring to export IMS data into DB2 and Sybase Inc.'s Open Server servers. Sets of data are created from the collected corporate records and distributed through Sybase's Open Client middleware to Mac and Windows users running Foster City, Calif.-based Blyth's Omnis 7 database.

Union Carbide's live data, which resides in transaction-based sys-

tems, is not available to desktop users until it has been stored in the IMS database. Toler said it would be much more difficult to maintain data integrity if users were entering data into their Omnis database and exporting their changes to IMS at the end of the day.

Companies that rely on middleware applications, such as Apple's Data Access Language (DAL), to facilitate data entry and data access don't have the same trepidation about putting live data within the reach of ordinary users. These systems generally run on SQL database-management systems that can deliver record locking and data integrity even among multiple servers.

DAL, combined with Brio's DataPrism, Andyne Computing Ltd.'s GQL, Mitem Corp.'s MitemView or Connectivité Corp.'s Both, can provide interactive access to SQL databases running on a mainframe or workstations. These applications add to the end user's productivity because they include their own analysis features or can interact with spreadsheet, data modeling or graphing applications on the Mac.

"Our users are focused on getting data out of the human-resources database and packaging it for their boss," said David deMilo, principal technical analyst for a New York-based Fortune 10 company. The company in January switched from IBM PCs and compatibles running MS-DOS to Macs. "We're using DataPivot to take advantage of DAL's ability to write to DB2. Because it represents data graphically, we can create links that are very meaningful for someone who already understands the structure of the database."

Penetrating the IS citadel.

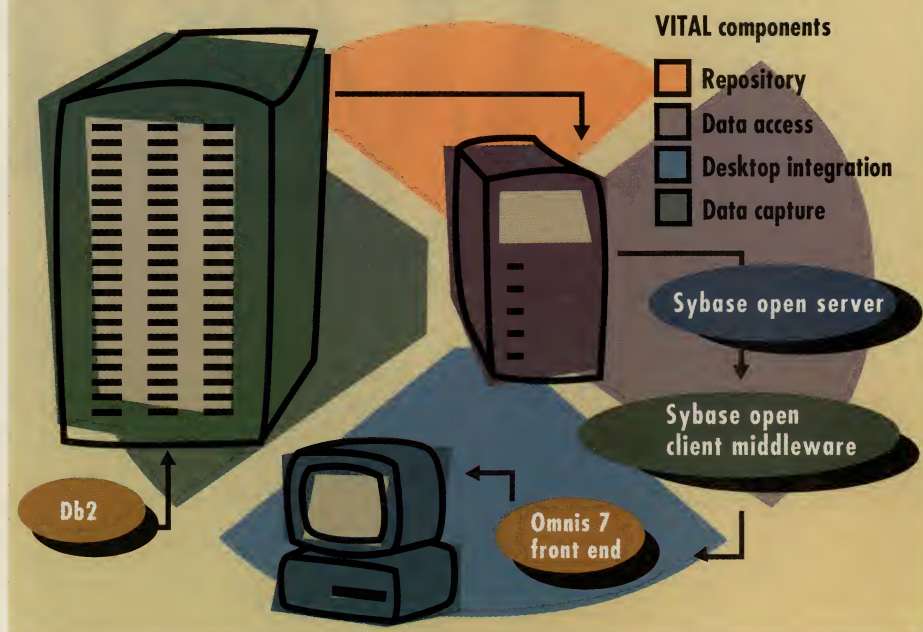
Apple introduced the Macintosh as "the computer for the rest of us" in 1984, but for many years since, only the select few IS priests were allowed to work in the data fields of the corporate mainframe.

None of the companies contacted for this story is prepared to ditch the heavy iron in their IS departments for completely distributed systems. It's a fact Apple clearly took into account in designing its information-harvesting strategy.

"The database supervisor became the spigot for data on the mainframe," deMilo said. "Last year, we were getting ready for a new IS investment. We knew we could get a mainframe application, like PeopleSoft (a mainframe database package), or we could get desktop PCs that give us better access to data."

The resulting network uses Information Builders Inc.'s EDA/SQL and DAL to provide transparent data access between desktop clients and the IBM 3270 mainframe, which runs DB2. Sev-

Data harvesting according to Union Carbide



JILL SPRADO

eral custom ACIUS Inc. 4D databases are running on workgroup servers in the executive offices of the company as well.

The state of Washington's Office of Financial Management took a different route to data access to deliver users from IS dependence. The agency, which sets the accounting practices for all state agencies, used Connectivité's Both to set up its first graphical user interface to an IBM 3090 mainframe. Currently, only 200 of the several thousand users statewide are using the GUI.

"There was a horrendous delay in getting information," said Mark Donges, IS technology manager for the Olympia, Wash.-based agency. "It's very hard to manage an organization when the information is 30 to 60 days old. Now, we've got that down to one day."

In the past, users were given a set of standard report formats to use when requesting information from the database. Now, using the Connectivité front end, users can query the mainframe using an interface with pull-down menus and buttons.

Agri-info meets data scythe.

The information harvest may have to wait for the farm hands to upgrade their skills. For example, integrating the GUI into the state of Washington's overall data management structure is somewhat problematic because many users still log on from dumb terminals. "The reality is that we have to support the lowest common denominator," Donges said.

The accounting divisions of different state departments send reports to the Office of Financial Management, which are entered into the IBM mainframe. Users — mostly agency executives at this point — depend on the data as a historical resource.

Donges said the state will even-

tually distribute information in the financial database to interim servers around the state. Like many governments, the state of Washington is hard pressed for cash. But Donges said the increased speed and ease of access to information translates into a compelling argument for investing in, for instance, Oracle7 servers running on the Apple Workgroup Server 95.

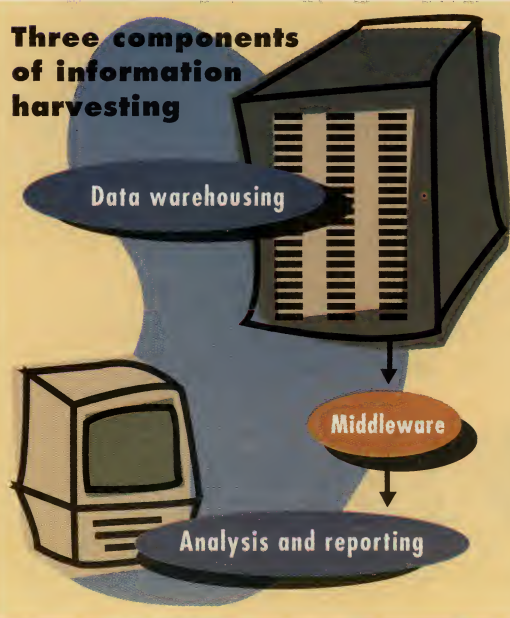
Even in corporate America, where competitiveness drives wild innovations in management styles, hardware grounds an organization's IS department in slowly changing architectures. Apple's information-harvesting strategy, through its use of existing technology, could coax IS toward distributed systems.

"These huge institutional databases, like payroll and human resources, are parked on mainframes, and there's no hue and cry to change," deMilo said. Since his company discovered it could do data entry, analysis and presentations in a single graphical interface, it has begun considering new applications. One plan would let employees review and change their benefits packages at a kiosk or in a desktop application. "We couldn't do that before, when data entry had to be centralized through a clerk."

At the same time, employees working with information at deMilo's company are struggling to assimilate the new, broader boundaries of their network. For users whose habits have been honed on the hard limits of mainframe databases, the transition isn't coming easily.

"We're dealing with people who have been trained and conditioned by their computers," deMilo said. Greater access to data means that people have more autonomy, an uncomfortable responsibility for employees whose working life has been defined by the rigors of the dumb terminal or MS-DOS. □

Three components of information harvesting





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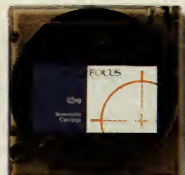
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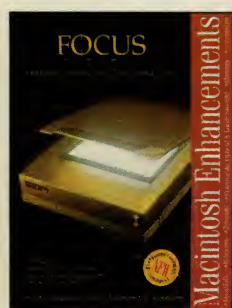


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FOCUS

enhancements



Fontographer gets a new face

New levels aimed at novices, pros

By Kirsten L. Parkinson

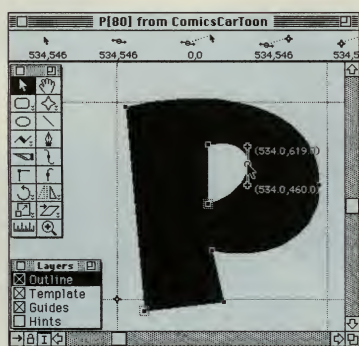
Richardson, Texas — Altsys Corp. next week will ship Fontographer 4.0, an upgrade that adds auto-spacing and edit-in-preview capabilities to the \$495 font creation and manipulation program.

New features of Version 4.0 include:

► **Advanced and beginning levels.** Fontographer 4.0 provides two modes, one for experienced users and one for beginners, for implementing many of the program's functions.

For example, when generating a font, novice users select only the typeface's format and platform, while advanced users can define more-complex features, such as family names and encoding vectors.

► **Edit in preview.** Users can view and edit the Bezier points of a



Fontographer 4.0 lets users see Bezier points and edit characters in Preview mode as well as in the outline window.

character in Preview mode as well as in the outline window.

► **Auto-spacing.** Version 4.0 automatically determines spacing and creates kerning pairs for a new typeface. Users can also set up tables that define spacing information for similarly shaped characters.

► **Path smoothing.** The new Clean Up Paths feature automatically redraws lines, placing the Bezi-

er points to conform to PostScript rules for font characters.

► **Floating tool palette.** A new floating tool palette offers all Fontographer's tools to the user, regardless of the view the user is working in. In previous versions, a different set of tools was available in each view.

Other new features include a multigon tool, improved auto-tracing functions, the capability to edit paths by clicking anywhere on a line instead of just on Bezier points and support for non-PostScript printers.

"[Fontographer 4.0] comes with a much stronger kerning and letter-spacing feature," said Josh Korda, a graphic designer for New York-based Scholastic Inc. "Once you create an outline, you can simply hit auto-spacing, and it will do a good, quick, nasty job for you. Then you can go in and fine-tune the details."

Upgrades from all previous versions are \$99; users who purchased Fontographer 3.5 after April 1 can upgrade free.

Altsys Corp. is at 269 W. Renner Road, Richardson, Texas 75080. Phone (214) 680-2060; fax (214) 680-0537. □

Tamarack hones the resolution of its 24-bit-color flatbed line

By Matthew Rothenberg

Milpitas, Calif. — Tamarack Technologies Inc. has raised the resolution of its 24-bit-color flatbed scanner line with a new 2,400-dpi model.

The Tamarack 12000C, priced at \$1,995, captures images measuring up to 8.5 by 11.75 inches at an optical resolution of 1,200 by 600 dpi, which can be raised to 2,400 by 2,400 dpi via software interpolation. It scans eight bits each of RGB (red, green, blue) information per pixel in three passes and captures eight-bit gray-scale or monochrome images in a single pass.

According to the company, the 12000C can scan a 600-dpi color image at maximum size in as little as two minutes, depending on available RAM and the speed of the CPU.

The 12000C is based on a proprietary engine and a Toshiba CCD (charge-coupled device) array and ships with a SCSI interface.

Image controls include four built-in gamma-correction curves,

200 levels of brightness and contrast, 25 halftone patterns for monochrome images, and scaling from 12.5 percent to 800 percent.

The scanner comes bundled with Adobe Photoshop 2.5, the latest version of the \$895 image-editing application from Adobe Systems Inc. of Mountain View, Calif.

Users can also purchase an attachment priced at \$795 for scanning transparencies.

The 12000C joins the company's 800-dpi Tamarack 8000C and 600-dpi Tamarack 6000C, priced at \$1,245 and \$1,095, respectively. These color flatbed models, along with the recently discontinued Tamarack 3000C, shipped under the name ArtiScan until December, when Tamarack changed its name from Artix Technologies Inc. (see MacWEEK, May 4, 1992).

Tamarack Technologies Inc. is at 1544 Centre Pointe Drive, Milpitas, Calif. 95035. Phone (408) 956-0144 or (800) 643-0666; fax (408) 956-1552. □

Cirrus 2 supports more formats, System 7's ColorSync, AppleScript

By Matthew Rothenberg

San Francisco — Canto Software Inc. next month will deliver Cirrus 2.0, a new version of the company's scan-enhancement program that broadens its support for file formats and new features of the Mac operating system.

Cirrus 2.0 will retail for \$395, a \$100 increase from the current version, 1.5. It can save images in CMY (cyan, magenta, yellow) and RGB (red, green, blue). It also features support for such formats as QuickTime-compressed PICT and TIFF 6.0.

Cirrus 2.0 is compatible with

ColorSync, Apple's system extension for device-independent color matching; the company said it will bundle Cirrus with the ColorSync extension as well as device profiles for about 60 flatbed scanners.

Version 2.0 adds support for AppleScript and will ship with scripts that automate a variety of scanning tasks. It also supports custom Apple events that link Cirrus to other applications, including Canto's Cumulus image-database application.

Version 2.0 features a new automated prescan function and enhanced

See Cirrus, Page 29



Version 2.0 of Cirrus, Canto's scan-enhancement software, offers users enhanced image controls and the ability to save and name custom scanner settings.

Alias brings animation, 2-D drawing tools to upFront

By Neil McManus

Toronto — Alias Research Inc. next month will refurbish Alias upFront with an upgrade that introduces animation features, 2-D drawing tools and new transfer formats.

upFront 2.0 will also carry a new \$299 price tag, down from \$425. The upgrade to the polygon-based 3-D drawing program will include:

► **Animation.** A new feature called SpiderVision lets users generate walk-through animations by

drawing a path through a 3-D scene. Animations can be saved as QuickTime movies or PICS files.

► **2-D drawing tools.** upFront 2.0 adds a variety of 2-D tools, including a rectangle, circle, polygon and pencil, that can draw onto any 3-D surface in true perspective. They can also be used as templates for 3-D shapes. Another new tool carves openings in 3-D objects.

► **View toolbox.** Icons at the top of the screen let users quickly select

navigational tools, such as Pan, Zoom, Tumble and Rotate.

► **Translucent surfaces.** Objects created with upFront 2.0 can take on the appearance of glass.

► **New formats.** Scenes can now be exported to high-end 3-D renderers such as Pixar's MacRenderMan via RIB (RenderMan Interface ByteStream) format. Version 2.0 also lets users exchange 3-D models with programs such as Alias Sketch! in DXF (Drawing Interchange File) format. The program can now import and export TIFF images; the previous version was limited to exporting files in PICT, Encapsulated PostScript and Adobe Illustrator formats.

The update comes with a video tutorial and a library of more than 100 3-D clip objects, including furniture, people, trees, vehicles and windows. Registered users can upgrade for \$50.

Alias Research Inc. is at 110 Richmond St. E., Toronto, Ontario M5C 1P1, Canada. Phone (416) 362-9181; fax (416) 362-0630. □

This image was created in Alias upFront 2.0 and imported to Adobe Illustrator for touch-up. The squares, targets and lettering were added in Illustrator.



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Paint Alchemy plug-in offers mix of styles, brushes

By Neil McManus

San Francisco — Xaos Tools this week is shipping Paint Alchemy, an Adobe Photoshop plug-in that lets users brew up a batch of special effects.

Paint Alchemy is based on Xaos' Pandemonium effects engine, which was previously avail-

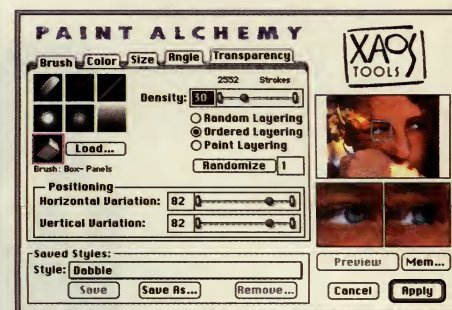
able only on Silicon Graphics workstations.

The new plug-in comes with 76 adjustable styles, such as Bubbles Pastel, Cotton Ball, Cubist, Mosaic Vignette, Newsprint, Screen Door, Spatula, Trees and Water Marker.

Users can create hundreds of variations of Paint Alchemy styles by adjusting their para-

meters. The Bubble styles, for example, include parameters such as bubble size, color, blend amount and "glob factor."

The Xaos plug-in also ships with 36 brushes, including Footprint, Saturn, Smoke, Weave and Whirl. Users can create their own brushes from any PICT file. Xaos also sells Floppy Full



Paint Alchemy users can change parameters of brushes and styles on control cards and preview the effects on a small area of an image.

of Brushes, a \$19.95 package that contains 50 additional brushes.

Paint Alchemy retails for \$99. Until June 30, Xaos is offering the program for \$29.95 or in a bundle with Floppy Full of Brushes for \$39.95. The bundle will sell for \$59.95 during July, and then the price will increase to \$109.

Xaos is at 600 Townsend St., Suite 270E, San Francisco, Calif. 94103. Phone (415) 487-7000 or (800) 289-9267; fax (415) 558-9886. □

Image Club, Letraset release font collections

By Kirsten L. Parkinson

San Francisco — Letraset and Image Club Graphics Inc. last month shipped new font collections of graphics and text in TrueType and Type 1 formats.

► **Fontek DesignFonts** from Letraset comprises six sets of illustrations. Each collection offers between 70 and 100 images organized by theme as well as styles such as woodcut, cut-paper and geometric designs.

For example, the Naturals collection includes geometric images of trees, animals, fruits and vegetables, while the Primitives set offers a variety of human and animal figures. Each DesignFonts collection is available now for \$89.95; a package of all six sets retails for \$349.

► **newFaces Spring 1993**, Image Club Graphics' latest offering, consists of 11 text faces, including script fonts; art deco styles; a futuristic typeface called Newtron; and QWERTY, which resembles a computer keyboard.

Users can purchase individual typefaces for \$19 to \$29 each or buy them all for \$109.

Letraset is at 40 Eisenhower Drive, Paramus, N.J. 07653. Phone (201) 845-6100; fax (201) 845-5047.

Image Club Graphics Inc. is at 1902 11th St. S.E., Suite 5, Calgary, Alberta T2G 3G2, Canada. Phone (403) 262-8008 or (800) 661-9410; fax (403) 261-7013. □



Fontek DesignFonts offers users six sets of illustrations in both TrueType and Type 1 formats.



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create graphics using a cordless, batteryless, pressure-sensitive stylus, about the size and weight of a fine pen. Now, creating art on a computer is as *natural* as creating art on a note pad, a canvas, or even a subway. To see just how flashy and way cool the ArtZ is, TAKE THIS SIMPLE TEST:

(1) Cut out the mouse at the top of the page. Blow it up if you like. Now (2) *trace it* with the mouse

on your computer. Then (3) print it,

and (4) scurry on down with both to your local Wacom dealer. Don't know where one is? Just call 1-800-922-6613. When you get there, (5) trace the mouse on an

ArtZ. *Feels good*, doesn't it? Now (6) print it and (7) compare the two. OK? Now

(8) pull out your pocketbook. You've been doing *mickey mouse art* long enough.

*For the mice that run on a Mac, you can't call for pest control. But for the mice that run on top of a Mac, and under a Mac, and in the cupboards and stuff, call these guys: Orkin Exterminating.

WACOM

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New sets, updates join clip-art picture

By Ian G. Jacobs

San Francisco — Graphic designers in search of black-and-white or color images can turn to a crop of new and updated clip-art collections.

► **3G Graphics Inc.** last month unveiled the latest offering in its Images With Impact! series.

The \$129.95 Places & Faces 1 package includes 190 black-and-white and CMYK (cyan, magenta, yellow, black) Encapsulated PostScript images of facial expressions, as well as recreation, transportation, travel and nature scenes.

The company also has incorporated Places & Faces 1 into Version 2.0 of its Images With Impact! CD-ROM. The \$499.95 disc contains more than 1,700 images in both EPS and 72-dpi, eight-bit-color PICT format. It includes all six Images With Impact! collections as well as almost 500 color graphics. Upgrades are \$49.95.

► **Bantam Computer Books** is shipping the Dover Electronic Clip Art Library, Volume 1, which offers more than 400 images of subjects such as food and medical scenes.

The \$49.95 package contains four disks of royalty-free black-and-white EPS clip art and a 265-page book displaying the images.

► **Dubl-Click Software Inc.** recently updated its \$349 WetSet CD-ROM with a change of image formats and enhancements to the collection's software utilities.

WetSet 2.0 includes 7,000 images in MacPaint format; the graphics in the previous version were in FullPaint format. Subjects include Egypt, holidays, country living and animals.

Dubl-Click's four utilities, ArtRoundup, PatternMover, BigCaps and FontCharter, are now System 7-compatible, the company said.

In addition, all images are cataloged in Aldus Fetch and Multi-Ad Search (from

Multi-Ad Services Inc. of Peoria, Ill.) databases, and Version 2.0 includes a runtime version of Multi-Ad Search.

► **T/Maker Co.** last month shipped 16-bit-color versions of two collections in its ClickArt Studio series.

Like the black-and-white collections they

replace, the new versions of Sports and Games and Animals and Nature each contains about 150 EPS images.

The packages join three colorized ClickArt collections the company released in April (see MacWEEK, March 22).

The color sets list for \$99.95 each, \$30 less than the price of the black-and-white versions. Upgrades are \$29.95 each.

3G Graphics Inc. is at 114 Second Ave. S., Suite 104, Edmonds, Wash. 98020.

Phone (206) 774-3518; fax (206) 771-8975.

Bantam Computer Books is at 666 Fifth Ave., New York, N.Y. 10103. Phone (212) 765-6500 or (800) 223-6834; fax (212) 492-8903.

Dubl-Click Software Inc. is at 22521 Styles St., Woodland Hills, Calif. 91367. Phone (818) 888-2068 or (800) 266-9525; fax (818) 888-5405.

T/Maker Co. is at 1390 Villa St., Mountain View, Calif. 94041. Phone (415) 962-0195; fax (415) 962-0201. □

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SONY



T/Maker's Sports and Games clip-art package has 150 color EPS images of equipment and athletes.

Cirrus

From Page 26

graphical controls for brightness, contrast, gamma curves, density and color space. Cirrus 2.0 users can also save and name custom scanner settings.

Although Cirrus is less well-known to U.S. Mac users than competing software packages such as Light Source Inc.'s Ofoto, the application has sold well in Europe. Canto Software Inc. was established in March as a U.S. subsidiary of Berlin-based Canto GmbH (see MacWEEK, March 1).

Canto Software Inc. is at 800 Duboce Ave., San Francisco, Calif. 94117. Phone (415) 431-6871 or (800) 332-2686; fax (415) 861-6827. □

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Real time QuickTime Capture to Hard Disk	✓	✓
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THE EYES AND EARS OF MULTIMEDIA™

New Media STEVE ROSENTHAL

Neurons and artificial reality

Haven't thought much about epistemology or neurology lately? How we know what we know and how the brain works are crucial issues for anyone who creates or evaluates software for training, education, simulation

or artificial reality. That's why I'd like to recommend a fascinating article, "To See and Not See," by neurologist and author Oliver Sacks, which appeared in the May 10 issue of The New Yorker. It tells the story of

a 50-year-old man Sacks calls Virgil, who had his eyesight medically restored after being blind since early childhood.

But, as Sacks recounts, there's much more to vision than eyesight. Because of these other factors, the patient was unable to fully process the new information and gradually lost even the limited visual ability he had regained.

Much of the difficulty, Sacks said, was the result of a difference in mental models. A

blind person "sees" portions of an object sequentially by sense of touch. Objects stay largely consistent in character regardless of their orientation, and it's easy to tell foreground from background.

The world perceived through sight is very different. A sighted person can see an entire side of an object in parallel. Objects change in their basic shape depending on the viewing angle. Knowing what's foreground and background requires not only perceptual skills but a base of knowledge about where objects are likely to be located and their usual sizes.

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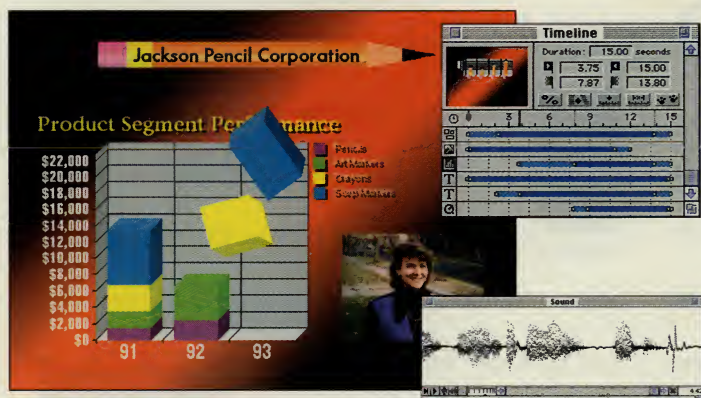
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It may be that learning to be comfortable with interactive education or artificial reality is also, in part, a matter of neurology and also best done in earlier years.

Going from one to another of these views certainly takes training, but Sacks suggests it might also take actual neuron development in the brain, as well as a psychological acceptance of the change. During normal human development, certain areas of the brain get wired for certain activities, and the ability to switch to a new use for those areas decreases with age and varies from person to person.

It may be that learning to be comfortable with interactive education or artificial reality is also, in part, a matter of neurology and also best done in earlier years. And just as some people have the "ear" for language, only some people will have the "eye" and "ear" for simulated displays. If the learning cannot be done early, the entire process may become more difficult and less intuitive.

Furthermore, Sacks said, the added stimulation of the visible world was such a strain on Virgil that he retreated from it.

But evolution hasn't designed any of us to deal with the kind of rapidly changing image you can get on a video screen. We may find that many people assigned to lengthy interactive courses or those who hang out in "cyberspace" for long periods of time will undergo similar stress.

If so, it may be possible for them to build up their tolerance by gradually increasing the length of sessions. Or there may be specific exercises we need to learn that could help out.

Our present concentration on technological questions such as goggles, gloves and screen designs may be understandable. It's natural to assume that a more lifelike display is better, and more color, motion and image depth will help us learn faster. But as the Sacks article suggests, we ought to check out these assumptions rather carefully. □

Send tips and comments to Steve Rosenthal, c/o MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105; AppleLink: Steve.R; MCI: 114-8611.

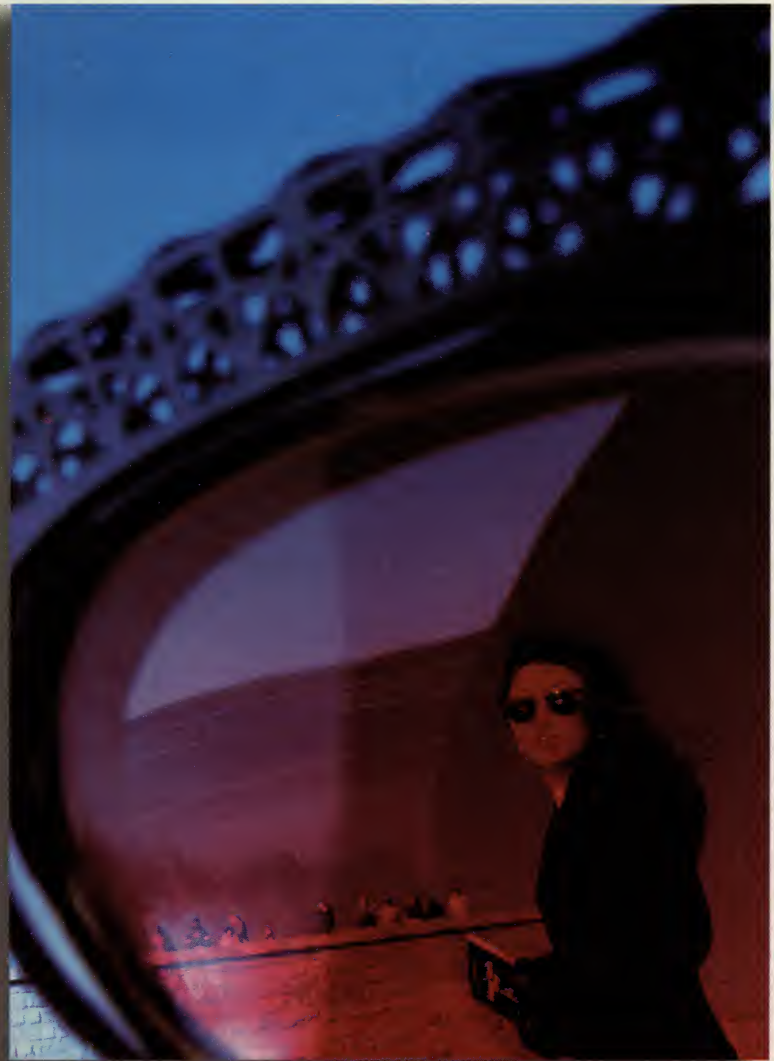
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BUSINESS WATCH

► Industry news
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News Analysis

Dealers not sold on Apple rebates

Price reductions also draw ire of resellers

By Jon Swartz and Lisa Picarille

San Francisco — Apple's announcement last week of a price cut and rebates of as much as \$350 may win over users, but dealers said they aren't sold on the idea.

The company cut prices on select Macs from 7 percent to 13 percent and on peripherals by as much as 28 percent shortly after it said second-half earnings will fall short of expectations (see story, Page 3). Additionally, Apple unveiled a program that offers on-the-spot rebates.

But while users are reaping the twin benefits of price reductions and rebates on such models as the

Centris 610, PowerBook 180 and Mac IIvx, dealers claim their margins are being squeezed.

"[Apple] is out to get the dealers," said Jerry Hanlon, manager of Bitz-Bytes Computers Inc. of Concord, N.H. "They are using our margins to give the rebates back. We just have to hope we get the money back in a reasonable time."

On-the-spot rebates. Hanlon and other dealers are concerned that the rebate program, which requires dealers to issue checks to users when they buy a product, puts undue pressure on dealers because Apple took as long as several months to reimburse dealers under a previous promotion — not the two weeks it promises under its current plan.

"Apple should give us coupons that can be filled out by the end user, who will then get the rebate

See Dealers, Page 34

What is the secret of Lapis' success?

By Jon Swartz

Alameda, Calif. — While its larger competitors have slugged it out in the Mac monitor market, where margins are thin, Lapis Technologies Inc. has carved an enviable niche in the 16- and 24-bit video-card market for the Mac LC and other NuBus machines.

The company's ProColorServer and DisplayServer product lines are among the market leaders, and several new products are expected to significantly boost sales this year.

"Our mission has been to complement the Mac but not compete with Apple," said Jim Harris, Lapis co-founder, president and CEO. "We want to make products that no one else is providing — such as a 24-bit card for the LC. So far, our results have been good."

Indeed, the private, 36-person company has several reasons to be bullish.

► **Fiscal year 1993 sales** are expected to double from about \$5 million a year ago, to about \$10 million.

► **Sales for Lapis' first quarter** ended March 31 were \$2.35 million, up 35 percent from a year ago. The

Lapis Technologies

- **CEO:** Jim Harris
- **Founded:** 1989
- **Headquarters:** Alameda, Calif.
- **1993 revenues (est.):** \$8-10 million
- **Employees:** 36
- **Major Mac products:** L-TV, DisplayServer, ProColorServer, DisplayNet

company, based here, has posted 11 consecutive profitable quarters.

► **Orders for L-TV**, an NTSC card that lets users of Mac LCs or Performa 400s use a TV screen as a monitor, and its first Duo Dock product, due in August at Macworld Expo in Boston, are expected to lead the sales surge.

Meanwhile, Lapis is attempting to enlist mass-merchant chains in a move to reach more consumers.

The company currently offers its products through mail-order companies and distributors such as Ingram Micro Inc. of Santa Ana, Calif., and Merisel Inc. of El Segundo, Calif. □

Central Point to buy Maxa

By Jon Swartz

Beaverton, Ore. — Ending months of negotiations and weeks of speculation, Central Point Software Inc. last week signed a definitive agreement to acquire Maxa Corp.

The privately held companies declined to provide financial terms of the deal.

The long-rumored acquisition, which brings Maxa's Snooper and Alert! diagnostic utilities to Central Point's product line, could be finalized as early as this month (see MacWEEK, May 31).

As part of the proposed buyout, Maxa, based in Glendale, Calif., will maintain a sales and distribution force of about 10 employees in the Los Angeles area.

Central Point, based here, also named Maxa executive Brent Luckman to head its 8-year-old Macintosh business unit, according to Central Point.

Matt Mosman, Central Point manager of business development, said Snooper and Alert! will continue to be sold under the Maxa label for at least another two to three months. □

Microsoft, Time Warner, TCI trio become latest to vie for airwaves

By Lisa Picarille

San Francisco — If two's company and three's a crowd, the intersection of computer technology, telephony and television could get congested.

In the past few months, a handful of alliances — each comprised of a leader from the three fields — have formed to establish a transmission standard for the more than 57 million homes with cable television.

The latest technology trio, expected to be announced this month, features Microsoft Corp. of Redmond, Wash.; Time Warner Inc. of New York; and cable giant TeleCommunications Inc. of Englewood, Colo. The group reportedly will be called Cablesat.

According to industry observers, Cablesat could be the most potent alliance yet in the fledgling interactive TV services market. Time Warner and TCI together provide

cable service to more than 30 percent of U.S. households.

Cablesat faces plenty of competition, however, based on recent alliance activity.

► **Intel Corp., Microsoft and General Instrument Corp.** plan to bring interactive multimedia services to cable subscribers via the TV set-top converter box.

► **Kaleida Labs Inc., Motorola Inc. and Scientific Atlanta Inc.** also said they are developing a TV set-top converter (see MacWEEK, June 14).

► **Time Warner, Silicon Graphics Inc. and Scientific Atlanta** are co-developing hardware and software for digital TV systems.

► **U S West Inc.** recently invested \$2.5 billion in Time Warner to build sophisticated cable and information networks. AT&T Co. and Viacom International have announced a similar deal. □

Stock Watch

06.16.93 CLOSE WEEKLY % CHANGE

Apple 42.00 -5.08

SOFTWARE DEVELOPERS

Adobe 72.00 4.73

Aldus 16.75 6.35

Caere 7.50 -4.76

CE Software 3.75 7.14

Microsoft 92.50 1.65

Novell 28.88 4.05

Symantec 17.00 9.68

PERIPHERALS VENDORS

CMS 3.00 -4.00

HP 87.00 0.87

QMS 9.00 -1.37

Radius 3.75 15.38

RasterOps 9.38 5.63

Sigma 4.25 6.25

SuperMac 22.00 -2.22

STORAGE

Conner 10.13 -3.57

Maxtor 6.38 -5.56

Quantum 11.00 -7.37

Seagate 15.50 0.81

SyQuest 13.75 1.85

INDUSTRY INDICATORS

DEC 42.88 -0.58

IBM 49.88 -5.67

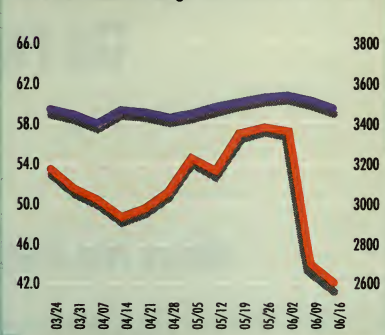
Motorola 83.63 1.98

Sun 30.88 1.23

Dow Jones 3492.00 -0.57

Compiled by Nordby International Inc.

Apple stock price..... 42.00 on 06/16/93
Dow Jones average..... 3492.00 on 06/16/93



Investors tune in to Motorola



Motorola Inc.'s recent announcement of an alliance with Kaleida Labs Inc. and Scientific Atlanta Inc. to provide interactive multimedia services to cable viewers via a set-top TV device contributed to a healthy

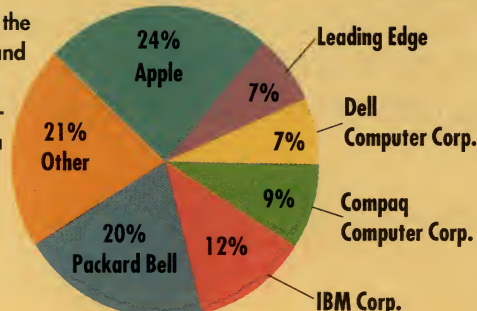
week on Wall Street for the company (see MacWEEK, June 14).

The Schaumburg, Ill.-based chip maker's stock was up by 2 percent last week, closing at \$83.63 a share in over-the-counter trading.

MacWEEK index

TOP-SELLING DESKTOP MACHINES

Apple computers were the top-selling desktop brand among U.S. dealers in April and May, according to Re:Launch Inc., a market research company based in Berkeley, Calif.



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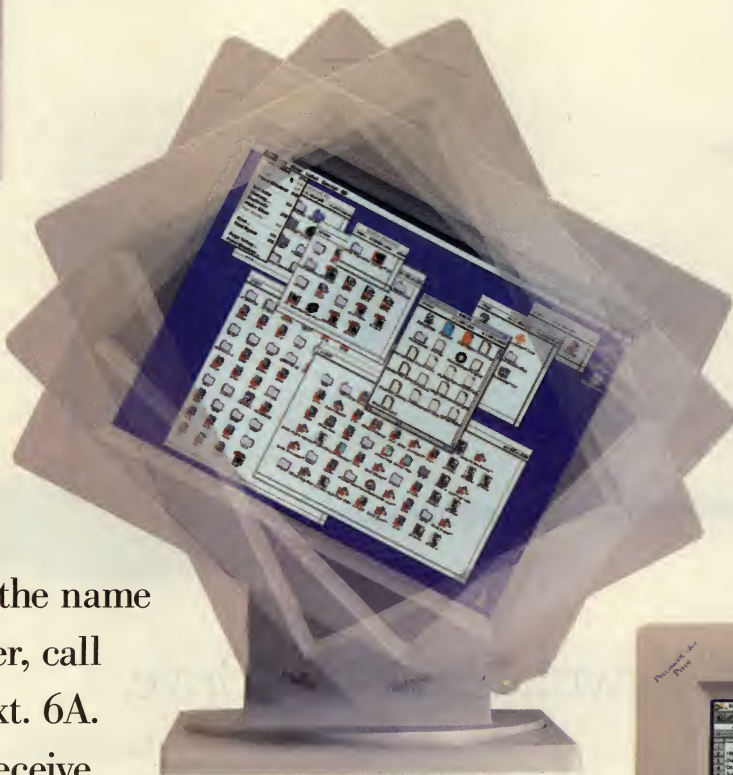
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Dell Computer poaches Apple exec

By Jon Swartz

Austin, Texas — Dell Computer Corp. has nabbed another top executive from rival Apple.

Dell, based here, last week announced that Eric Harslem, Apple vice president of the Macintosh Desktop Division, has accepted

the position of senior vice president of Dell's Product Group. Harslem, who will oversee product development and marketing, reports to Dell CEO Michael Dell.

Harslem succeeds Glenn Henry, who has been promoted to the newly created position of chief technology officer. Harslem is the

second high-ranking Apple official to join Dell this year. In March, John Medica, Apple senior director for Macintosh portable engineering, said he was joining Dell to head its Portables Products Group.

Another high-ranking executive in Apple's portable computing group, Neil Selvin, departed the company in March to join Global Communication Inc. of Mountain View, Calif. Selvin is president of the modem maker (see MacWEEK, March 22). □

SuperMac beefs up service, support units

Sunnyvale, Calif. — SuperMac Technology Inc. last week disclosed the formation of a new division to enhance quality control and said it is restructuring its service and support organizations.

The peripheral maker's newly formed SuperMac Labs group is targeted at solidifying its quality assurance and product testing. The new group, to be based at the company's headquarters here, will also be responsible for performing competitive analysis.

In another move, SuperMac has combined its service and sales organizations. Murray L. Dennis, formerly vice president of North American sales at SuperMac, will become vice president of the combined group. Dennis will oversee sales organizations in North America, Latin America and Europe as well as customer satisfaction, worldwide technical support and field service. □

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CHINON

The Drive To Succeed

Dealers

From Page 32

directly from Apple," Hanlon said. "Otherwise, we have no money to operate on; we're giving our margin to the user."

An unkind cut. Apple's second price cut in as many months, meanwhile, has created a logistical nightmare for dealers. While some stores are grappling with overstocked shelves of products that users expect Apple to soon discount, others can't get enough of Apple's more popular models because of supply constraints.

"It's frustrating and ironic," said one San Francisco Bay area dealer. "Last month's sales were dog slow. A lot of people sniffed out the [price] changes and postponed their purchases. By the same token, we can't give them [the products] they want."

Hans Fischmann, vice president of Entertainment Solutions Inc., a Mac value-added reseller in Hollywood, Calif., said: "Apple dropped sales in September and January, and coincidentally our sales rose in those months and dropped off in between. There have been too many changes in the prices of models."

For example, the price of the Mac IIvx 5/80 with CD-ROM, which debuted last October for \$3,219, has been slashed several times and is now \$1,799 with a \$300 rebate.

Apple has been forced to repeatedly cut prices to keep pace with Dell Computer Corp. and Compaq Computer Corp. in a fierce personal computer and peripherals price war, according to industry observers.

The cumulative effect of the frequent price cuts, dealers said, is that Mac sales have tapered off dramatically the past several months.

"The price cuts have hurt us in a variety of ways," said Howard Gelpey, president of Computer Etc. of Peabody, Mass. "If there were a supply for the full line, Apple wouldn't need to cut prices. If they need to cut prices, it means we have to sell more product to meet our sales goals. That can create some cash-flow problems with your business plan." □

Business BRIEFS

Creative Tech buys ShareVision

Singapore — Creative Technology Ltd. this month announced an \$11 million acquisition of ShareVision Technology Inc., a developer of videoconferencing software for the Mac.

With the buyout, Creative Technology, based here, adds a Mac product to its stable of IBM PC and compatible products for sound and video multimedia.

A Creative Technology spokeswoman said ShareVision will be relocated to Milpitas, Calif., from San Jose, Calif. She said it is unclear how many of ShareVision's 26 workers will be laid off.

Pinnacle Micro going public

Irvine, Calif. — Optical-storage maker Pinnacle Micro Inc. this month announced plans to go public.

The company, based here, said it has filed a registration statement with the Securities and Exchange Commission for an initial public offering of 1.8 million shares of common stock. The IPO is scheduled for this month.

The public offering will be underwritten by Prudential Securities Inc. of New York, which expects an initial price per share of \$10 to \$12.

Deneba battles software piracy

Miami — Deneba Software last week initiated a software licensing program for government users aimed at eliminating software piracy.

Under the Get Legal program, users can call a hot line and instantly purchase a discounted Deneba Canvas license for workstations with illegal copies of Canvas, Claris Corp.'s MacDraw and other popular drawing programs. Deneba is offering Canvas, which normally costs \$399, for \$149. Deneba, based here, said it will grant free, temporary Canvas licenses for critical situations.

The hot-line number is (305) 596-5644, Ext. 132.

Shana takes WordPerfect to court

By Jon Swartz

Edmonton, Alberta — Shana Corp. is suing WordPerfect Corp. over its use of the name "inform" for two of its products.

Shana, based here, this month filed a trademark-infringement suit in U.S. federal court in Virginia, alleging that WordPerfect's

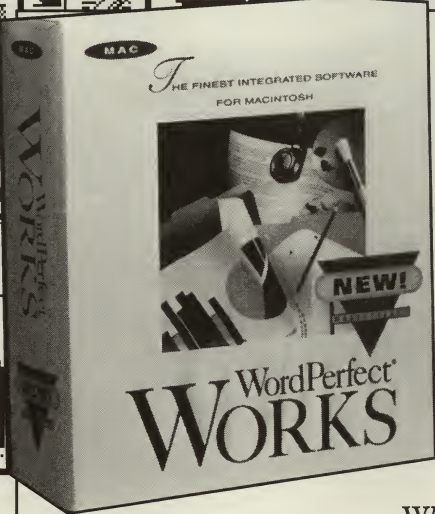
Inform and Informs Designer electronic-forms software "presents unfair competition" to Shana's line of Informed Foundation software.

Shana's electronic-forms software packages, which are among the top-selling in their category, began shipping in 1990; WordPerfect's products began shipping in 1991.

"We have taken this step because of the significant level of confusion expressed to us [by customers]," Shana President Don Murphy said. "We have made every effort to reach an agreement with WordPerfect to resolve this problem — without success."

John Murphy, Shana vice president of marketing, said Shana will drop the suit only if WordPerfect changes its product names.

A spokeswoman for Orem, Utah-based WordPerfect declined to comment on the suit. □



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applications." And according to MicroTimes, GlobalFax is "a delight. Pressing the Option key converts from print to fax output. The fax directory, transmission and printing tools are comprehensive and easy to use."

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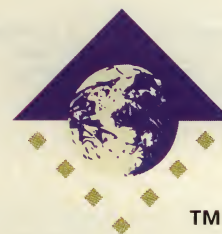
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EDITORIAL

It's a numbers game

When Apple embarked on Mac cost cutting two and a half years ago, it should have known what sacrifices were necessary to play the market share game. So if the company finds itself trapped in a cycle of diminishing returns, it has no one to blame but itself.

Box moving is not a strategy for the weak-willed. The vendors in that marketplace don't pull punches, and most have operating overheads one-third the size of Apple's.

When your products and your competitors' products cost the same to build, the luxury of huge R&D budgets and a "fat" organization can make it impossible to compete. On top of one of the largest expense burdens in the PC market, Apple also piles one of the biggest profit margins. The result is that Macs cost from 30 percent to three times more than the equivalent PC clone.

To counter this problem Apple lowers its prices, as it did last week. But as it lowers prices, it lowers the money it makes per unit. If the margin goes down by half, then Apple must sell twice as many Macs to make the same profit.

Despite a lot of talk about Apple's software business, to date the company has generated little revenue from either software sales or licensing agreements.

Nor can the company look to consumer electronics to prop up its bottom line. Newton hardware will have razor-thin margins, and significant earnings from licensing Newton and other consumer-electronics technologies are years away.

Apple needs to come to terms with this unpleasant fact: It makes money by moving iron, and as such can ill afford a high overhead. If that overhead goes to efforts that don't produce profit, then those programs should be cut.

This is what it takes to play the numbers game. You can't invest money in such an unfocused collection of businesses as servers, on-line services, content publishing, cross-platform technology licensing and consumer electronics. If Apple is to survive, the company must focus on the business that pays the bills — and, to paraphrase the old saying, put all its wood behind the Macintosh arrow. □

My Turn by Jim Young

IS departments need to get off their fat paradigms

On a recent Saturday, Marian Wright Edelman, founder of the Children's Defense Fund, was the commencement speaker at my son's graduation from Southern Methodist University in Dallas. She said to the 1993 graduating class: "My generation learned that we had to get off the dime in order to accomplish something. Your generation must learn that you have to get off the paradigm."

Although she was speaking to a college graduating class, those words apply just as well to information systems organizations.

Fallen behind. As I write this column (from my airplane seat, using a Duo 230), there are about 340 weeks until the 21st century begins. Three hundred forty weeks ago, the Macintosh was less than 3 years old, the mainframe computer ruled, IS departments controlled application systems development, portable computers weighed nearly 20 pounds, and downsizing was not a common word in the vocabulary of business.

The changes in that relatively short period of time have been both remarkable and swift. The paradigm shifts, the need for organizations to move from one technology to another to stay competitive, have been significant. Is there any reason to think that the next 340 weeks will be less turbulent than the past 340?

In the 1970s and early 1980s, organizations could accept 18-month to three-year development cycles for new applications because the useful life of an application system might be eight to 12 years.

In those days, the cost of hardware far outweighed the cost of people and, thus, of software. The pace of change today suggests that application systems in many organizations might need major revisions within two to four years after development.

The old development paradigm won't work anymore. Many IS organizations have committed to client-server applications. But for many, that commitment is simply lip service. They are generally sticking to Cobol applications on mainframe computers with 3270-like displays for many of their core systems.

IS in charge. I'm not suggesting that organizations discard all their legacy systems and start over using the latest tools. I am, however, suggesting that with the changes and challenges facing all organiza-

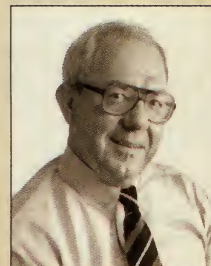
tions today, IS should be the leader in rethinking what the organization is doing, how the organization is doing it and why.

In the process of that rethinking, IS needs to consider all the tools and techniques that could be applied to help the enterprise operate more effectively. Mainframes, client-server architectures, computer-aided software and engineering tools, application prototyping, graphical user interfaces, and other approaches should be considered.

IS can be the leader in this exercise, and it can help the enterprise identify those things that contributed to success but that may now be toxic to the organization. Then the enterprise can be well on its way to competitiveness and vibrancy.

I recently heard Dan Rather say that the next century will come not when the calendar turns, but when events dictate. Regardless of the number of weeks remaining, it appears to me that the 21st century has arrived. It's time to get off our collective paradigms. □

Jim Young is chairman of MacIS, a national organization of Macintosh IS managers.



LETTERS



Resource Center manager pleads case for Dartmouth

I was quite surprised to find Dartmouth College not on the MacWEEK 200 Top 50 education sites this year (MacWEEK, May 24). At any one time we have more than 3,000 Macs attached to our network, according to our January network poll. The college itself owns just less than 2,000 Macintoshes, and if you count all staff, faculty, undergraduates and the associated hospital that is also part of our environment, the total is more than 11,000. Even with the 2,000 figure, we rank above the last few on the list.

I have been given to understand that this total is based on the number actually owned by the college. I question the wisdom of this since that is hardly representative of the computing environment.

At Dartmouth, all undergraduates are required to have a computer, and most opt for the Macintosh. Of these, more than 90 percent are attached to the network. This is far more significant than the number of computers the college itself owns, especially if one is interested in finding a site where a large number of Macs are used and in finding out how they are used.

Can many other sites that boast more than 10,000 Macintoshes claim such a high level of usage by the bulk of the population at that site?

Would potential vendors be more interested in a site with 5,000 Macs that are in a public cluster and used only to print papers, or would they be more interested in a site that has integrated the Mac into the curriculum and has developed software locally to allow greater use of the system?

These opinions are my own and in no way reflect those of my employers or Dartmouth College.

Andy J. Williams, manager
Computer Resource Center
Dartmouth College
Hanover, N.H.

The person we contacted at Dartmouth supplied us with a figure similar to yours — about 10,000 Macs — but the number apparently included Macs personally owned by the students and faculty. We were unable to find a contact who could give us an accurate count of only the Macs belonging to Dartmouth.

We held the survey open until the last minute trying to verify, but the only reply we received was from someone in the computing center who said that the 10,000 figure "probably" includes student Macs. (With 5,475 students and 468 faculty, it seems unlikely that the university itself would have 10,000 Macs.)

Although the entire computing environment is important, the study is concerned

only with Macs purchased by the organization, not those bought by private individuals. One of the purposes of the Education 50 is to discover which Mac models organizations use and which they plan to acquire, because that tells us something about current and future use of the technology.

While large-scale Macintosh environments such as the one you describe at Dartmouth are interesting to us, they are beyond the scope of the list (but interesting environments are profiled in the articles that accompany the report). It would be virtually impossible to find reliable information about Macs personally owned by the faculty and students at all the universities we contacted. — Ed.

Power Team innovations go beyond those of Assist

I am bothered by two aspects of the story "Rae to assist users on the go" (MacWEEK, May 31).

The story touts the software as being "designed to bring much of the promised functionality of the Newton to PowerBooks," but it goes on to explain that the program is based on ACI US Inc.'s 4th Dimension Version 2.2.3. Assist's disk-intensive database engine can be expected to be a significant drain on the battery. That certainly isn't the ideal feature for a PowerBook application.

Power Team from ProVUE Development has been shipping for several months and contains data-entry features that are strikingly similar to those implied to be innovative in the story. Power Team offers features well beyond those mentioned, including Natural Fields, Clairvoyance and automatic ZIP-code look-ups. Additionally, Power Team is based on ProVUE's Panorama, which, unlike 4D, is RAM-based, making it ideal for PowerBook use.

Despite its innovative content, Power Team has not received the coverage it deserves. I suspect that Rae got the coverage it did because it has a great public-relations team.

Assist may be an excellent product, and a module comparison may show marked differences between it and Power Team. But I think it is unfair to insinuate that Assist is a groundbreaking application based on how it helps the user enter data.

Derek Martin
Mac manager
Clearwater Inc.
Pittsburgh

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The Mac Manager

Do Macs crash too often? Yes, and it's time to act



DON CRABB

Two and a half years ago I asked the question, "Does the Mac crash a lot?" Being a snooty, arrogant Macophile, I opined that (a) the Mac wasn't all that bad, and (b) System 7 would finally save us from the many and varied ways that our Macs crash and freeze.

Now, 30 months later and with a considerably drier proboscis, my opinion has changed: The Mac does crash far too often, and we must do something about it.

Much of the blame has to rest with us. We blithely go along, assuming we can keep adding system functionality without exacting a reliability price. Apple, of course, has helped foster this "roll your own OS" attitude with its building-block system architecture based on extensions, control panels and system enablers.

The surface logic of that strategy seemed sound for the past couple of years. Unfortunately, the subsurface underpinnings of the Mac system have not gotten more robust in the interim. System 7.1 is no more reliable than 7.0.1 or 7.0. Indeed, plenty of Mac managers find System 6.0.8 beats them all for fewest reported crashes. Regardless of System 7 benefits, we can't count improved reliability among them.

As a result, most of us suffer more crashes, freezes and other miscues now than we did two years ago. Diagnosing system problems has gotten so difficult that many Mac managers resort to "reinstalling the universe" to make things right.

Case in point. I've spent part of this past week trying to solve some strange network problems at my site, while also trying to help a colleague solve his own

Mac problems. We both have complex, mixed networks that include Macs on LocalTalk and EtherTalk, and we both have been suffering from a variety of undiagnosable and unexplainable problems.

First, there is the "Mac freezes for no apparent reason" problem. This usually occurs when the Mac is running MacIP while acting as a terminal to a Unix server on the network. A switch to another foreground application, then a switch back to MacIP, freezes the Mac. The only way out is the nasty restart switch; the other partial interrupts just don't work.

Then there is the "I am going to hang during the middle of a file save operation" trick. It doesn't matter what applications are running. This sort of system hang happens all too often and for no apparent reason. Again, the only sure cure is to restart.

In the meantime. There's got to be a better answer to these and other Mac crashing problems — a better answer than restarting, and that better answer has to come from Apple.

We can help ourselves in the interim by drawing a line between needed functionality and fluff, thereby keeping our systems as "clean" as possible. And we should be using the many clever diagnostic programs to help us fix immediate conflicts or flaky hardware.

But Apple bears the ultimate responsibility to get its system act together. It can do this only by making the Mac operating system more powerful and orders of magnitude more reliable. □



"The cross-platform consultant is here."

Exchanging the way users view documents

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The push toward electronic document delivery is gaining strength as publishers look for ways to increase the value and longevity of information. This need has spurred the growth of new software products and the adoption of interchange

standards such as SGML, which describes a document's structure and content regardless of the system and software on which it was created. MacWEEK examines the ramifications of SGML and other document-interchange technologies.

Escaping proprietary language barriers: How SGML evolved

Standard Generalized Markup Language and other interchange standards emerged from the need to transfer information from the proprietary computing platforms of the 1970s and 1980s without redundant work and unnecessary cost. SGML, specifically, was designed to enable users to code electronic text streams in such a way that they could be output on more than one vendor's phototypesetting machine. With the advent of desktop tools, the issue shifted to exchanging documents among computing platforms and applications, as well as outputting documents on a variety of devices, much like what PostScript now handles matter-of-factly.

PostScript and PCL are device-independent page description languages that have relieved software application vendors of having to write drivers for every output device their users want and freed users from vendor-imposed constraints on output choices. Prior to output, however, applications still have an iron hold on your information. It's called formatting.

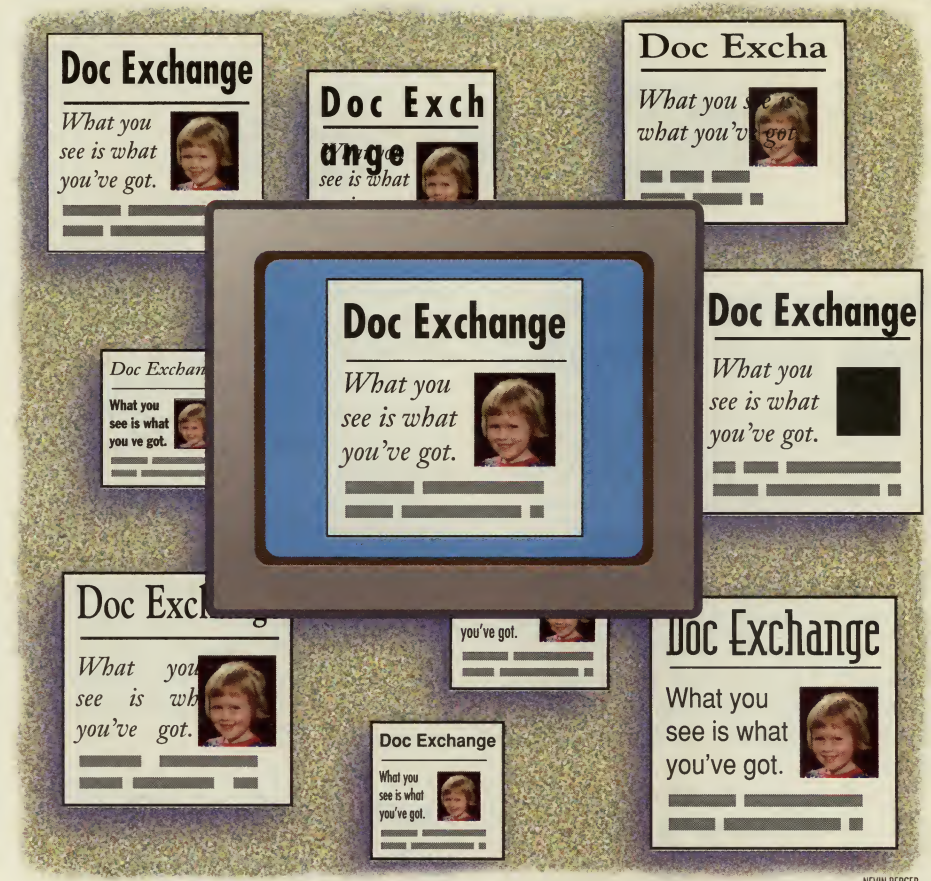
Both the electronic typesetters of the 1970s and the desktop publishing and word processing applications of the 1980s and 1990s embed formatting information into text streams. This is called procedural coding. The problem is that nearly every desktop publishing system and word processor,

like older-generation typesetters, uses a proprietary coding scheme.

The result was that as book publishers, the U.S. Department of Defense, aerospace manufacturers and other major producers and users of information began to explore the potential of electronic technologies to help them better manage their information products and processes, they ran into these incompatibilities among systems. Although continuing to produce and manage an increasing volume of paper-based information was insupportable, electronic alternatives didn't come close to offering the interchangeability of paper.

SGML, which was invented by Charles Goldfarb in 1986, was adopted as a means to restore interchangeability while adding the flexibility of easy storage and access, rapid revisability, and virtually unlimited reuse. It has since been adopted as a core standard by the joint industry/Department of Defense CALS (Computer-aided Acquisition and Logistics Support) initiative by the Air Transport Association, the telecommunications industry and other industry associations. It is also being used by the OSF (Open Software Foundation).

— By Rebecca Hansen



SGML promises to transform mainstream doc interchange

By Rebecca Hansen

For most corporate users, multiplatform environments are a fact of life, and transferring complex documents between platforms is often very difficult. But just when Mac users thought they were nailing down the Mac-to-Windows process, on the horizon appears a dizzying array of operating systems from PowerOpen to Windows NT.

So it is with some relief that we look at

Standard Generalized Markup Language (SGML), a method for describing the relationship between a document's structure and its content. SGML enables documents to be stored and exchanged independent of formatting, software applications and computing platforms (see story, Page 43).

For years SGML has been of interest primarily in vertical markets such as book publishing, defense manufacturing, aerospace and telecommunications but recently is being viewed with interest from broader quarters. WordPerfect Corp. of Orem, Utah; Microsoft Corp. of Redmond, Wash.; Aldus Corp. of Seattle; and others are working on adding support for SGML to their Mac products. Both Novell Inc. of Provo, Utah, and Silicon Graphics Inc. of Mountain View, Calif., recently adopted SGML as the means of delivering on-line product documentation to users (see story, next page).

SGML's functionality, the capability to create formatted information that can outlive the system on which it is created, promises to fundamentally change the way electronic information is shared.

Format score. Much of the momentum SGML has gained recently is a result of the growing demand for electronic distribution of technical documentation and other types of reference publications. Many information providers now see opportunities to repackaging their wares into new revenue-generating

See SGML, Page 42

New products ease formatting woes

While SGML is freeing electronic document structure for multiplatform use, 'portable document apps' are aiming to do the same for formatted documents.

By Michael Roney

Several vendors are shipping products, loosely termed portable document applications, that promise to provide users a simple, seamless way to exchange formatted information among Mac, Windows, Unix and DOS environments. Unlike the Standard Generalized Markup Language, which preserves a file's content and structure independent of formatting and originating application, portable document files are format-specific and require authoring and viewing applications.

Portable document applications are modular; contain multiple components for authoring and viewing; and maintain page geometry, type and graphics — even if recipients don't have the originating application or fonts. Most have annotation and "bookmark" features, which allow users to label document elements for quick access. They also include flexible navigational tools and multiple page views. Many boast hypertext links across multiple pages and documents, as well as customizable interfaces. Some packages support SGML and other structured document standards to allow intelligent full-text searches and the automatic creation of reference elements such as indexes and tables of contents.

Who needs it? Document portability addresses two distinct markets: on-line reference and electronic publishing. The more established domain is on-line reference, which generally involves long, content-rich user manuals, help systems and technical documents aimed at specialized audiences.

Master documents often reside on network servers, from which they can be accessed on Macs, Windows and Unix workstations. Viewing software is often pre-distributed and installed on recipients' CPUs, and often includes capabilities for searching, sorting and recombining information by document structure, as defined by SGML or application-specific style sheets.

The second, newer market, which could be called electronic publishing, encompasses graphics-intensive, page-based publications such as newsletters, annual reports, news releases and other disposable "view-only" pieces. Here, a relatively simple compact viewer application is often embedded or distributed with the main document.

Frame Technology Corp.'s FrameReader/FrameViewer, Electronic Book Technologies Inc.'s DynaText, Northern Telecom Inc.'s Helmsman, Folio Corp.'s Views and Interleaf Inc.'s WorldView are clearly designed for on-line reference, while No Hands Software's Common Ground and Nine to Five Software Co. Inc.'s PaperLess Printer primarily address the electronic publishing market (see chart, Page 46).

Adobe Systems Inc.'s Acrobat aspires to fit into both worlds: Its initial implementation is geared toward broad-distribution, view-only documents, while subsequent updates will encompass the full range of features for dealing with large, heavily structured technical publications.

On-line reference selection. FrameReader 3.0 for the Mac and Windows is a compact (640-Kbyte), read-only version of the company's flagship publishing product, FrameMaker. FrameViewer, now on 25 Unix platforms and scheduled for release on the Mac and Windows later in the year, features much more robust tools for on-line reference applications.

FrameReader is very basic. It displays only FrameMaker documents and has no sophisticated sort or search features. However, it benefits from the wide-ranging capabilities of FrameMaker, including rich hypertext capabilities and support for all types of graphic

and multimedia components, including sound and video.

FrameViewer features a configurable user interface, application programming interface (API) extensibility, full-text retrieval, bookmarks and annotation. It supports structured documents created with the company's FrameBuilder application. It does not directly support SGML, although SGML documents can be converted into FrameBuilder format.

FrameReader and FrameViewer use standard Mac or Windows font substitutions, although the next release will support Super Adobe Type Manager.

Northern Telecom's Helmsman 2.3 features a Unix-based authoring system that translates page-description files, such as PostScript, to CGM (Computer Graphics Metafile) format, making it open to a wide variety of source applications. While creating the portable document, Helmsman indexes all text, including words occurring within vector graphics. Users can then access the file through a Helmsman Viewer, which is available for Mac, Windows and Unix.

Although Helmsman does not currently support SGML, it does provide full-text

See Portables, Page 46

Publishing vendors harnessing power of SGML

By Larry Stevens

New and promised releases of Mac software packages will incorporate SGML. Now electronic publishing also has a standard.

Many of the biggest software vendors for the Mac — Microsoft Corp., WordPerfect Corp., Aldus Corp. and Adobe Systems Inc. — as well as some Mac newcomers now want a presence in electronic publishing and are supporting Standard Generalized Markup Language as a standard.

"Without [an interchange] standard for electronic publishing [that is] as well-accepted as PostScript, electronic publishers are working under a severe handicap," said Victor Levin, president of School Services of Canada Ltd., a Toronto-based company that makes CD-ROM books. "With SGML, a title is a title, whether you're working on a Mac or a PC." Levin's company is using Author/Editor, a cross-platform SGML authoring package from Toronto-based SoftQuad Inc., to create an audiovisual history of Canada on CD-ROM.

Vendors are supporting SGML in two

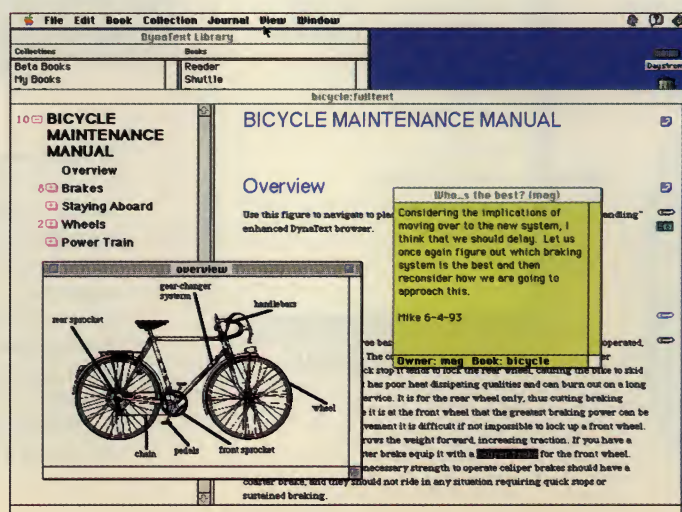
ways. Some have developed new packages that allow users to create or access SGML-tagged documents. Others are offering filters that allow their existing software to import or export SGML-tagged files.

Two Mac-based products, SoftQuad's Author/Editor and Electronic Book Technologies Inc.'s DynaText, fall in the first category, and at least two more are on the way.

By the first half of 1994, Acrobat, a new electronic publishing product from Adobe, will incorporate SGML. And Frame Technology Corp. said that Mac and Windows versions of FrameBuilder, software for creating SGML documents, "are in the works."

Away from ASCII. Author/Editor is a \$995 authoring package that allows you to define the structural elements of a document. You can use menu commands to identify each document element. Alternatively, you can

See Products, Page 44



A document with typical SGML tags, such as this one created in Electronic Book's DynaText, will have formatting and document structure tags embedded transparently in the text. Here, tags are made visible to show various font styles and sizes, annotations, and illustration cross-references.

SGML

From Page 40

products or differentiate their offerings through better customer service. Mainstream computing technology vendors are being pressured to provide the tools.

A significant obstacle is that electronic distribution usually requires reformatting documents for screen display as well as supporting multiple delivery platforms. SGML offers a ready answer in the form of tools and techniques that have been tested and proved for years.

While the immediate business benefits of using SGML for electronic delivery are compelling, the strategic reasons for paying attention to SGML are worth acknowledging.

What can SGML do for you today?

► **Protect your investment in information.** Converting existing information to SGML is no less expensive or time consuming than other conversion methods, but unlike other methods that convert information in one direction, SGML is a multiplatform, one-time conversion. Once converted to ASCII and tagged in accordance with a document type definition (DTD), documents can be processed by most platforms.

SGML also protects information against obsolescence caused by changes in data types because it identifies only object types, not what those objects contain. For example, an object specified as an image file could point to a CGM (Computer Graphics Metafile), TIFF or Encapsulated PostScript file.

"SGML does for documents and rich information what object orientation will do for code," said Esther Dyson, industry consultant and a member of the advisory board of the new SGML Open consortium in Boulder, Colo. "It allows it to be created once and re-used in different forms and applications."

► **Reformat and reconstitute information** for new delivery vehicles and customization

Other interchange standards

► **CGM (Computer Graphics Metafile):** International Standards Organization and American National Standards Institute standard for interchange of vector graphics data. Along with IGES (Initial Graphic Exchange Specification), it is referenced for CALS (Computer-aided Acquisition and Logistics Support) applications, but CGM is oriented toward illustrative rather than engineering views.

► **IGES (Initial Graphic Exchange Specification):** ANSI standard referenced for CALS applications. IGES defines a neutral data format for digital exchange of information among CAD systems and between engineering and technical publishing systems. Products are available that filter out engineering information (dimensioning, hidden lines, machine-tool parts), making drawings more useful for publishing purposes.

► **ODA (Office Document Architecture):** An ANSI and ISO standard for interchange of compound office documents. In contrast to SGML, ODA specifies both content and format. (Quite a few experts believe that the marketplace may have passed ODA by, particularly given that electronic distribution mandates reformatting.) From a practical

point of view, there is little vendor product support for ODA and few proven tools.

► **RTF (Rich-Text Format):** Microsoft Corp. format for interchange of text between Microsoft products. RTF is also widely used by other text-processing applications.

► **TeX:** System developed by Donald Knuth, professor of mathematics and computer science at Stanford University in Stanford, Calif., for encoding text for typesetting. TeX is extremely powerful for handling mathematical equations and other demanding applications, but it is also difficult to use for people without a programming inclination. Knuth made TeX freely available to other users, and as a result, it can now be processed on most desktop platforms, mini-computers and mainframes.

► **TIFF (Tag Image File Format):** Format for interchange of bit-mapped images. It was developed through an industry effort initiated by Aldus Corp. and has achieved de facto standard status.

► **ITU-TSS (International Telecommunication Union — Telecommunications Standardization Sector) Group IV T.6 Facsimile:** This standard for compression and exchange of bit-mapped files, formerly from CCITT, is referenced for CALS applications along with a closely related ISO standard.

requirements. Vendors moving toward electronic information distribution want to reduce costs by limiting the amount of work required to support specific output devices.

With SGML, information can be displayed in a way that is optimized for each user's viewing environment. For example, because content is stored separately from style, a style specification could dictate that a warning message display on a monochrome monitor as underlined black-and-white text, on a color display as flashing red text and on another device as a voice-synthesized warning.

Objects can also have attributes that suppress display of one version of information while substituting another. For example, you can specify that a file display information appropriate for various skill levels or security levels, depending on the

match between conditions in the style specification and a user's profile.

Lisa Wellman, industry manager for publishing and imaging at Apple, said this capability to create information that "knows a lot about itself and its user" is what is ultimately so interesting about SGML.

"Some of Apple's customers are large medical institutions," she said. "A major hidden cost today is the time care givers spend training patients about medication or certain procedures, such as insulin injections."

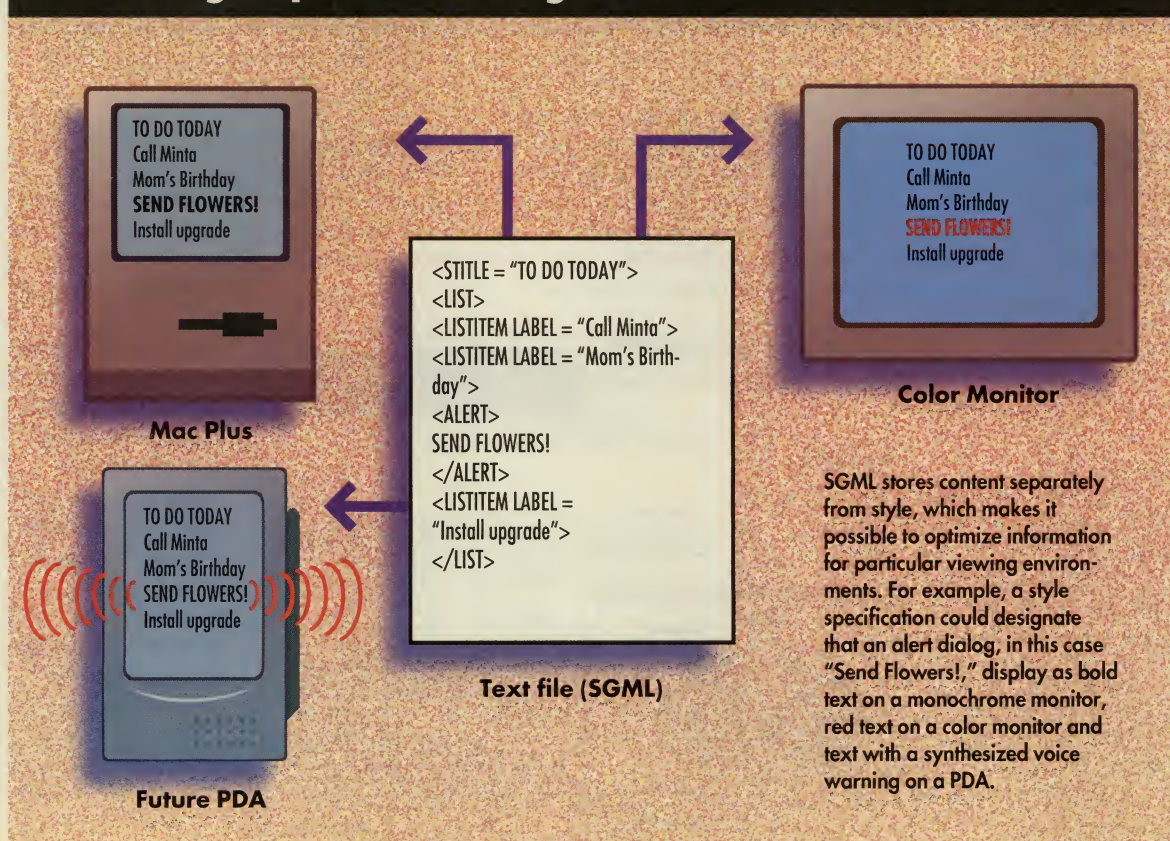
Wellman said customization is critical because you can't explain insulin injection procedures in the same way to an 8-year-old, a 30-year-old and an 80-year-old. Therapies often must be adjusted as a result of other medical problems a patient has or their environmental and family conditions, she said.

► **Facilitate collaboration and speed work flow.** The capability to manage documents as collections of information objects that can be individually stored, checked out and locked in a database offers a great advantage for collaborative computing work styles. Publication projects can be broken up by document hierarchy or categories of document objects and allocated to multiple authors while still being managed as a whole. Vendors of SGML-aware electronic publishing software, such as Interleaf Inc. of Waltham, Mass.; Xyvision Inc. of Wakefield, Mass.; and Frame Technology Corp. of San Jose, Calif., offer tools that help track work flow as well as revision levels and review/edit cycles (see story, Page 41).

SGML can also make information in documents interact with external objects. The same capability to reference a special mode of processing that allows you to encode equations in TeX, a typesetting coding system or to display a TIFF image lets you launch other applications, perform database queries or send off an electronic-mail message when certain parameters are met within the document.

"Eventually what we want is for a document being edited in one company location that has shared information and cross-references to documents stored and used in many other locations to fire off messages to anyone whose work might

Customizing output format using SGML



"When you adopt SGML, what you're really doing is redistributing the cost of information delivery up front."
— Moira Meehan

have an interdependency," said John Bosak, information architect in Novell's Corporate Publications Group. "This scenario wouldn't be feasible without SGML."

SGML: The economic decision. The effort required to analyze documents, develop DTDs and tag text files can be considerable, depending on the complexity of the information and ambitions involved. Recently, however, technology has begun to alleviate some of the cost of adopting SGML and will likely continue to do so. This cost has to be weighed against the added value that SGML tagging builds into electronic information and the potential business benefits that can be derived from it.

Moira Meehan, SGML product manager at Interleaf, said that accounting methods often can be misleading about the real costs and benefits of SGML implementation. "When you adopt SGML, what you're really doing is redistributing the cost of information delivery up front," she said.

Author/Editor from SoftQuad Inc. of Toronto is one product that can bring upfront costs down. It hides most of the complexity of SGML tags behind style-sheetlike menus. Unlike word processor style sheets, however, a structured SGML file is built in the background, and the application can also constrain users from establishing objects that do not conform with the underlying DTD. SoftQuad also provides scripting tools that enable other vendors to incorporate support for SGML into their products.

For companies that don't want their users creating SGML files or where the decision has been made to convert existing documents to SGML, there are post-processing tools, such as FastTAG from Avalanche Development Co. of Boulder, Colo., which analyze the format of word processing documents to build an

SGML-tagged file. Avalanche also sells the SGML Hammer, which converts SGML files to the proprietary formats of leading word processing applications as well from one SGML application to another.

That's not enough to make SGML attractive to a large cross section of users, said Michael Cockrill, program manager in Microsoft's Word business unit, or to make SGML practical for informal documents with no clear market value. For that to happen, he said: "SGML has to be as transparent to users as networking is today. Microsoft's major focus in this area is how to make SGML easy for Word users."

The problem, said Mark Walter, senior editor of the Seybold Report on Publishing Systems in Media, Pa., is that "adopting SGML involves imposing order on documents and creators. And that goes against the grain of computer development in the mass market, which is toward empowerment of the individual."

Microsoft's Cockrill said: "The needs of the workgroup and larger organizations to manage information in a consistent fashion are in conflict and can easily impinge on the freedom that enables the individual to work productively. Word currently offers about 10 ways to make characters bold. Rather than mandating how people must do things, we need background processes that ensure conformity."

Consultant Dyson said it will be a long time before most organizations can justify SGML for nonpublishing applications. She does expect that software could provide formslike interfaces that could make it possible to capture a certain amount of document structure without forcing the creator to tag it explicitly.

But what about the more onerous job of analyzing document structure and modeling it in DTDs? Charles Goldfarb, senior technical staff member of IBM Corp.'s

Almaden Research Center in San Jose, who invented the SGML language, said that his original DTDs for office documents were extremely simple. But because early adopters were organizations (such as defense contractors) with large, complex information-management problems, the DTDs they produced were extraordinarily complex. "I couldn't believe the CALS (Computer-aided Acquisition and Logistics Support) DTD when I saw it," Goldfarb said.

Making it simple. But DTDs don't have to be complex. As SGML is adopted by an increasingly broad base of users, they will develop DTDs that reflect simpler document architectures — and these will be available as models for other users.

In addition, customizable templates and component libraries of document object types could be used to speed DTD development. Object-oriented diagramming tools may also offer solutions.

"While the tools may get easier," said Christopher Locke, vice president of business development at Avalanche, "the thinking process you have to go through is not something to be avoided. In fact, that's probably more than half the value of SGML."

Besides, Locke said, companies are already doing it. "Users are way ahead of the software industry," he said. "They're involved in business process re-engineering, empowering workgroups, global team building, total quality management and a host of other initiatives they see as necessary to compete in the 1990s — and what they're running into in many ways is a computing infrastructure that throws up barriers."

"Now up pops SGML from the most unexpected quarter, a publishing standard, and it offers the solution companies are looking for to set their information free in the way that will support their business initiatives." □

Tagging along: How SGML works

Standard Generalized Markup Language-tagged files are pure ASCII files, with no formatting information. Instead, they include descriptive coding.

SGML tags mark the beginnings and ends of logical document elements, such as a heading, subsection or caption. More specifically, you could tag a repair procedure, tool, electrical specification or part number. These tagged elements function as information objects and can be stored and managed as such. Tags can also point to external entities, such as graphics and image files.

The tagged file is accompanied by a document type definition (DTD). The DTD is really an agreement between people exchanging documents on how they will use SGML to describe a common document architecture. Under the CALS (Computer-aided Acquisition and Logistics Support) initiative, for example, defense manufacturers and the U.S. Department of Defense jointly developed DTDs that were agreements on how to use SGML to produce documents that met military needs (for example, MIL-M-38784, the most widely used specification for military documents). Other verti-

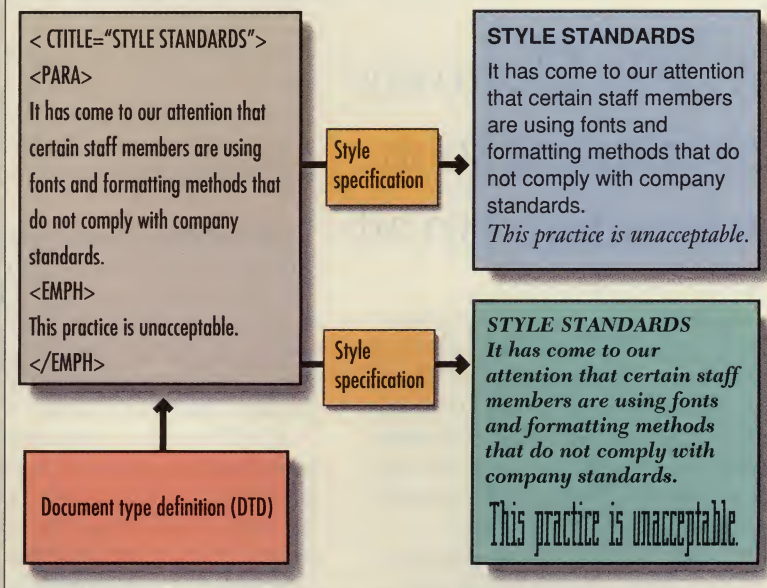
cal industries, including aerospace and telecommunications, have developed their own agreements.

The DTD includes a list of allowable objects and the tags used to identify them. The DTD also specifies the relationships between information elements (that is, subsections are contained within sections).

Procedural instructions, which include formatting attributes for each information object, are stored separately as a modifiable style specification. By changing the style specification or processing the tagged file with an alternative style specification, you can change the look of a document (see illustration, right). For example, you can automatically transform a document from two columns of 14-point type to three columns of 10-point type.

Procedural instructions in the DTD can reference external processing methods. For example, objects tagged as equations can contain an attribute specifying that they be processed using TeX, a typesetting coding system. Both the Institute of Electrical & Electronic Engineers and the American Mathematical Society publish their journals using

The elements of SGML



SGML but handle equations in TeX.

According to Charles Goldfarb, senior technical staff member of IBM Corp.'s Almaden Research Center in San Jose, Calif., SGML was designed to enable users to continue to handle information with specific processing requirements in the optimal manner. "SGML doesn't limit

you to just one way of doing something," Goldfarb said. "What it does is give you a standard way to state which encoding method you are using for an object type, to point to a program that can interpret that coding and to describe the relationships between different object types." — By Rebecca Hansen

NEVIN BERGER

Products

From Page 41

associate typographical features with structural elements. The program's Outline view lets you view specific structural elements in the document, making it easy to scan a document by displaying, for example, only titles and section heads.

According to SoftQuad, about 70 percent of its customers use Author/Editor to produce printed documents. The remaining 30 percent use it to create electronic documents.

Chicago-based United Airlines Inc. uses Author/Editor in its San Francisco office for both purposes. Mary Frances Charnley, senior information specialist, said the capability to move formatted documents from print to electronic form speeds the process of distributing information. United's primary use for Author/Editor is to create a Minimum Equipment List, a document used by maintenance personnel to check an airplane before each takeoff. The list must be edited and approved by six to eight United employees and three to four others outside the company. Charnley's department uses a DEC VAX system with a Mac front end, but the document is often viewed and printed on other systems.

In the past, the document would be distributed in ASCII format so that it could be viewed on any system. Since the text-only document had no formatting, readers found it difficult to identify titles, summaries, subheads and other structural elements.

Now that structural elements are tagged and can be viewed electronically, the total approval time for each document has dropped from six months to 30 days.

Charnley's department is now in the process of publishing the finished document electronically so that mechanics all over the world, who work with many kinds of computers, can quickly access the information they need.

Aldus PageMaker now provides links to Author/Editor. The links allow a structurally defined element in Author/Editor to be translated into a style in PageMaker. Once a link is established, any changes to the Author/Editor document result in a corresponding change in the PageMaker document.

Electronic book report. Unlike Author/Editor, which is used for both print and electronic publishing, Electronic Book Technologies' DynaText is maximized for electronic publishing. A Mac version of DynaText is scheduled for release in July, complementing its Unix and Windows versions.

DynaText has two components: an authoring tool called Indexer that accepts source material in any format, including SGML, and a Browser that lets users read, annotate and query the electronic book. Price ranges from \$150 to \$1,500, depending on quantity.

Novell Inc. of Provo, Utah, is using DynaText to create electronic versions of NetWare 4.0 documentation, which comes in electronic form in lieu of printed manuals and takes up 4,500 pages in paper form.

Peter Jerram, director of corporate publications at Novell, said that when the project began two years ago, the company determined that, to be successful, the electronic books had to be platform-independent, and "SGML was the only way to achieve that unless we used ASCII, which would have made it very difficult for our customers to read the documents."

Jerram said that navigating or searching a document without being able to limit a search to sections heads or to view only tables of contents, for example, "would have been harder than working with paper books, and our goal is to make it easier."

Tagging such a large document would have been a massive job had it not been that three or

four years ago, Novell standardized on Frame Technology Corp.'s FrameMaker. Because all the documentation was in the same format, Jerram said Novell was able to create custom SGML-filtering software using FastTAG, SGML translation software from Avalanche Development Co. of Boulder, Colo.

Novell is planning a Mac version of its documentation soon after the Mac version of DynaText becomes available later this summer.

Structure for the masses. Even if you don't purchase a specific product that allows you to tag SGML, chances are the desktop publishing or word processing application you're using provides or soon will provide that functionality.

WordPerfect's Intellitag, an SGML filter, runs on Sun workstations. It allows you to tag documents with SGML either manually or in batch mode. WordPerfect files can be saved as SGML, which maintains only structural data, or as combined WordPerfect and SGML, which saves formatting and structural data.

The DOS version of Intellitag is expected to be released this summer. Although there are no immediate plans for a Mac version, WordPerfect said that it will eventually release Intellitag for all platforms.

Anyone who is using current, powerful versions of Microsoft Word, WordPerfect or Aldus PageMaker may well have wondered what the software companies can do for an encore. For some, SGML support is the next major enhancement. "The increasing featurization of word processors and desktop publishing programs has just about reached its upper limit," said Yuri Rubinsky, president of SoftQuad and acting chairman of the SGML Open consortium. "The next step is to broaden the programs so that they can support electronic media as well as print. In that regard, SGML will be an essential element." □

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processing
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will soon
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functionality.

Guest editorial by Frank Gilbane

SGML: Electronic distribution soon to be offered to all

Distributing documents electronically appears to have finally hit the mainstream as a legitimate option, especially for companies that must distribute large amounts of information. Low-cost, cross-platform viewing products not restricted to a particular application are making wide-scale electronic distribution feasible.

However, there are a growing number of viewing formats vying for market share. Many of these viewing formats include (or will include) support for Standard Generalized Markup Language (SGML). The fact that SGML is a standard for representing unformatted information has caused most of the confusion. After all, who would choose to view unformatted documents when most desktops now support WYSIWYG displays?

While consumers might not easily see the

reasons for viewing unformatted documents, there is a trio of reasons why documents will benefit from SGML support: information re-use, enhanced navigation and the flexibility to use multiple viewing formats.

Information re-use. It used to be that "distribute electronically" really meant "distribute electronically and print." Now it usually means "distribute electronically and print or display," and sometimes it actually means "distribute electronically and print, display, edit or load database."

SGML provides a way to describe information so that it can easily be re-used for these and other applications. In fact, one of the driving forces behind the raging interest in SGML is the need to publish the same information in both paper and electronic forms. SGML empowers users to embed one set of formatting characteristics for paper presentation and another for electronic presentation. This is appealing to publishers because it can lower the cost of publishing on multiple media.

Also, if SGML is included in the viewing format, it should be possible to extract it, meaning that consumers could also re-use

information in electronic documents. (This raises some interesting copyright issues.)

Enhanced navigation. Since SGML describes structural information (how a document is organized), it facilitates the automatic generation of navigational aids, such as a table of contents or a hyperlink. Having access to this organizational information also means that search tools can be much more efficient in finding information. For example, a search could be restricted to a glossary, a title or a footnote, thereby increasing the accuracy of the search.

Freedom of choice. Since SGML is a true standard, it helps ensure that your information is always accessible. If the source information is in SGML, you are free to choose the publishing system or viewer product that best suits your needs. You can even decide to use multiple viewers. Given the growing number of product options, this is certainly an advantage to both publishers and consumers.

So there are compelling reasons for source information to be in SGML form and also some benefits in having SGML information embedded (hidden) in a viewing format.

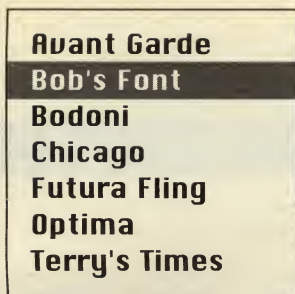
New solutions.

SGML is a standard that focuses on how you create and manage information rather than how it looks. SGML does not prevent you from viewing documents as fixed electronic pages that mirror their printed counterparts or as dynamically resized windows optimized for a desktop or personal digital assistant screen. You can decide how you want to present information independently of how you create and manage it.

Deciding how to present electronic documents and which products to use is not a simple issue, but it is certainly not a choice between SGML and something else. SGML does not compete with document-viewing formats but is a feature that adds significant value to electronic document solutions. □

Frank Gilbane is editor of *The Gilbane Report on Open Information & Document Systems*, a newsletter in Arlington, Mass.

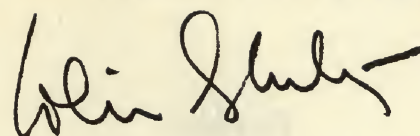




Name your fonts and select them from any font menu.



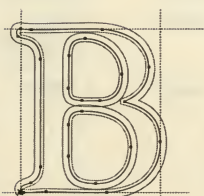
A technical document might need a range of fractions or special symbols; create them quickly and easily in a custom font. Time taken to create: 1 minute
Keystrokes required: 6



Autotrace your signature or any other scanned image—place it in a font and assign it to a keystroke.



Design and create a logo; then assign it to a keystroke.



Blend two fonts to create a third. Time taken to create: 2 minutes
Keystrokes required: 5

abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
LMNOPQRSTUVWXYZ
Z1234567890!@#\$%^&
*O+?

This font "TFHabitat" was created in Fontographer by Joe Treacy of Treacyfaces, Inc.



Fontographer always opens a copy of your existing font, keeping your original intact.

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Fonts are like money; the more you have, the more you're able to do. Just think what you could accomplish if you had access to an infinite number of fonts. Fontographer® 4.0, the type manipulation and design program from Altsys, gives you that.

And more.

Fontographer actually lets you open copies of your fonts and—without drawing a thing—automatically modify characters and add new ones, turning your existing typefaces into entirely new personalized PostScript® language and TrueType™ fonts.

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Vary italic angles. Automatically space and kern any font. Autotrace scanned images to create new characters. Or instantly increase and decrease type weight.

Fontographer also lets you incorporate graphics into your fonts. Imagine a company logo or your signature as a keystroke.

Here's one we recently added to this font: our 1 1/2 review rating from MacUser. According to MacUser's Bruce Fraser, Fontographer is the "tool of choice for creating fonts on the Macintosh."

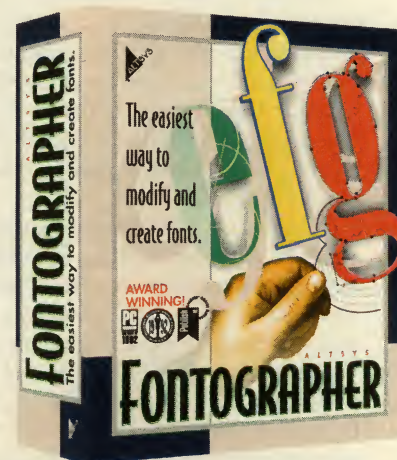
Fontographer's straightforward interface means you can be creative without being confused. In fact, the hardest part about using Fontographer may be dreaming up names for all your new creations.

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Ask us about our Windows version.

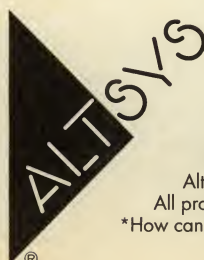


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Portables

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search and retrieval capabilities through Structured Full-text Query Language (SFQL), an emerging standard built upon SQL, which is popular among database applications.

Interleaf's WorldView system includes WorldView Press, which runs under Unix (and later this summer, DOS), and WorldViewer, which is available for the Mac, Windows and Sony Corp.'s handheld MMCD (Multimedia CD-ROM) player. WorldView Press comes with Interleaf 5.0 as its primary authoring tool and also includes HyperLeaf Toolkit, which allows indexing, full-text retrieval and hypertext navigation. It creates portable documents from a number of word processing applications, graphics file formats and PostScript.

WorldView's main advantages are its capability to combine multiple documents from various applications into single collections with most formatting and typography preserved (it substitutes the closest of 35 included fonts) and its "dynamic recomposition" feature, which supports variable screen and page displays for different types of viewing devices.

Folio's Views 3.0 creates portable "infobases" from major word processing and database formats. Up to 125 users can edit a master document at once or edit personalized "shadow files" that sit in a layer above the master. Changes to shadow files are instantly indexed and made searchable. This capability makes Folio Views a unique tool for technical support or customer-service situations requiring a dynamic database.

Views is available for DOS and Windows; a Mac version is projected for release in the third quarter. The Mac version will support SGML using software that is being developed jointly with Exoterica Corp. of Ottawa.

Electronic Book Technologies' DynaText is designed for building structured portable documents from SGML files (see story, Page 41).

Paperless publishers. No Hands Software's Common Ground offers a simple, elegant solution for the creation and distribution of read-only electronic documents. Although it doesn't yet have the sophisticated structure-based features of the on-line reference packages, it boasts compact file sizes and accurate reproduction of page geometry, fonts and graphics.

Common Ground comes with Maker and AutoMaker, applications for producing platform-independent so-called DigitalPaper files from any document created by a Mac application, and compact Viewer and Mini-Viewer applications (300 Kbytes and 40 Kbytes, respectively) for reading DigitalPaper files. Common Ground's viewers display document pages at 72 dpi and 100 dpi for screen viewing and 300 dpi for printing.

The DigitalPaper format contains an "intelligent" bit map of the original document pages, including graphics and live text that can be pasted into other applications. This scheme allows Common Ground to faithfully reproduce all fonts whether they be PostScript, TrueType or complex international character sets such as kanji.

This contrasts with the multiple-master font replication approach of Adobe Acrobat and results in fast rendering and small files. DigitalPaper files can also hold "sound notes,"

Portable document applications

	ADOBE ACROBAT 1.0	COMMON GROUND 1.0	DYNATEXT 2.0	HELMSMAN 2.3	FRAMEREADER, FRAMEVIEWER 3.0	PAPERLESS PRINTER 1.0	VIEWS 3.0	WORLD- VIEW 1.1
Manufacturer	Adobe Systems Inc., Mountain View, Calif.	No Hands Software, Belmont, Calif.	Electronic Book Technologies Inc., Providence, R.I.	Northern Telecom Inc., Nashville, Tenn.	Frame Technology Corp., San Jose, Calif.	Nine to Five Software Co. Inc., Boulder, Colo.	Folio Corp., Provo, Utah	Interleaf Inc., Waltham, Mass.
Price	Exchange: \$195; Reader: \$50; Distiller: \$695 single user, \$2,495 unlimited users	\$189.95	Browser: \$350; Indexer/Viewer: \$1,000 per title; Runtime browser: free	Authoring System: \$20,000; Viewer: \$375-\$1,500	FrameReader: \$89.95; FrameViewer: \$195	\$119.95	Views: \$495; ViewsLite: \$195 per user; Runtime: free	WorldView Press: to \$10,000; WorldViewer: \$195
Platforms	Mac, Windows, DOS, Unix	Mac (soon Windows and DOS)	Mac, Windows, Unix	Authoring: Unix; Viewers: Mac, Windows, Unix	Mac, Windows, Unix	Mac	DOS, Windows	Authoring: Unix, DOS; Viewer: Mac, Windows, MMCD
Import capability	Any application; PostScript	Any application	SGML files	Word processing and page-layout applications	FrameMaker; FrameBuilder	Any Mac application	WordPerfect, MS Word, Folio Flat File	Interleaf 5, PostScript, ASCII
Viewer size	4-5 Mbytes	300 Kbytes	1 Mbyte	1 Mbyte	unlimited	unlimited	5-6 Mbyte	2-10 Mbytes
Resolution	All	72, 100, 300 dpi	All	All	All	All	All	All
Hypertext	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Annotation	Exchange only	No	Yes	Yes	Yes	Yes	Yes	Yes
Font replication	Multiple master	Intelligent bit map	Substitution	Fonts included/substitution	Fonts included/substitution	Substitution	Substitution	Fonts included/substitution
Full-text search	No	No	Yes	Yes	Yes	Yes	Yes	Yes
SGML support	No (next version)	No	Yes	No	Yes	No	Yes	No

digitized audio of up to one minute in length.

Hank Beck, president of Printable Inc., a graphic design and electronic-publishing center in Stamford, Conn., likes Common Ground because of its size, graphics fidelity and simplicity. "We produced a large rating manual for a reinsurance company, including 350 pages complete with medical charts and look-up tables," he said. "Our client loves being able to distribute it on disk or CD and then have it searchable, but not editable."

Nine To Five Software's PaperLess Printer similarly transforms any Mac document into electronic "paper" that can be viewed independently of the originating application. PaperLess Printer reverts to system font substitution when a document's fonts are not installed. PaperLess Printer is currently available only for the Mac; Nine To Five expects OS/2 and Windows versions by the summer.

Document magic tricks. Acrobat uses PostScript and multiple-master-type technology to create a flexible, extensible cross-platform file format called Portable Document Format (PDF). A PDF file can reproduce the appearance of document pages, including a variable approximation of typography, along with color or black-and-white images. It can also hold elements such as annotations, hypertext links and bookmarks.

Acrobat is modular, comprising four products. Acrobat Reader allows document viewing, navigation and printing. Acrobat Exchange adds annotation capabilities. And for Mac and Windows versions, Acrobat PDF Writer, a platform-specific printer driver, produces PDF files from applications.

Acrobat Distiller can translate PostScript files to PDF files in Mac, Windows and Unix environments.

"With Acrobat, we can take processed documents that come in from clients, such as a color book catalog from a publisher, and then create a PDF file to put up on our ISDN (Integrated Services Digital Network) wide-area network for access by book buyers all over the world," said beta-tester Todd Melet president of Business Link Communications Inc. in New York.

"These people use PCs and Macs but don't have [the page-layout program QuarkXpress]. Soon they'll be able to simply use their modems to see the latest catalogs, complete with fonts. They'll also be able to print the catalogs on color devices at their sites."

However, like PostScript, the PDF interpreter requires heavy overhead. Acrobat Exchange and Reader both need 4 to 5 Mbytes of disk space; Acrobat Distiller needs 6 to 12 Mbytes. Also, multiple-master fonts do not always provide an accurate simulation of fonts. While multiple-master font substitution maintains the correct font metrics, letterforms can often vary significantly from the original typeface.

By early 1994, Adobe plans to enhance Acrobat technology for the on-line reference market with support for structured documents and full-text search capabilities. It will include technology licensed from Avalanche Development Co. of Boulder, Colo., and Mastersoft Inc. of Scottsdale, Ariz., that will allow PDF files to work with structure from both SGML and native file formats. It will also include full-text search technology and an API for third-party applications. □

"Our client loves being able to distribute its manual on disk or CD and then have it searchable, but not editable."

— Hank Beck

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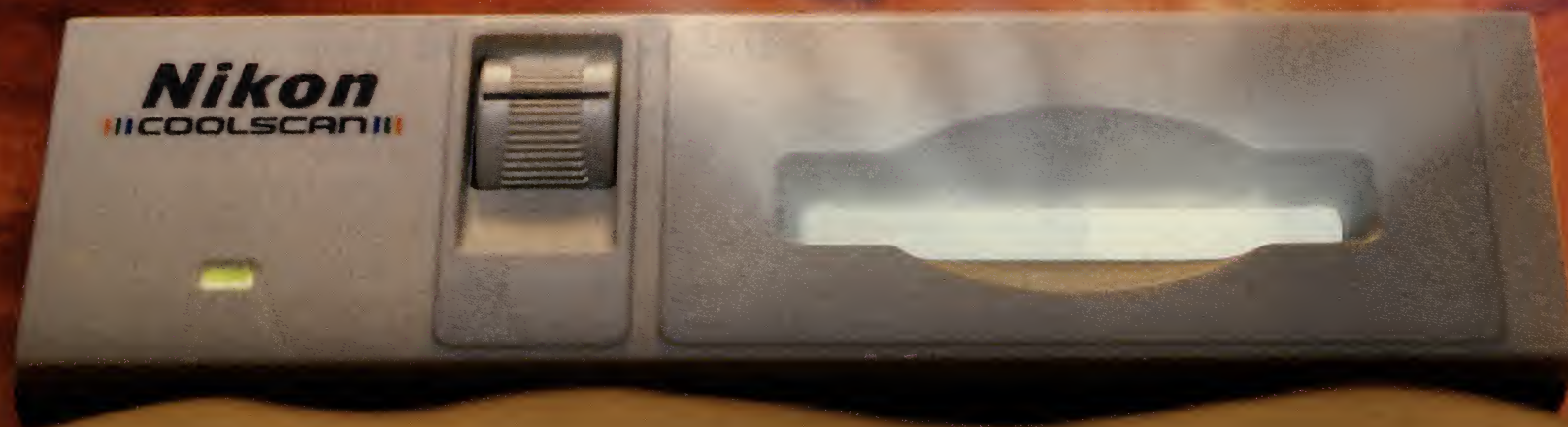
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EMBARC™
BY MOTOROLA

Reviews

- ▶ Reviews Forum. See Page 50.
- ▶ Hardware diagnostic utilities. See Page 58.
- ▶ Text-search utilities. See Page 62.



Cricket Draw III 2.0 seeks its place in PostScript illustration market

Computer Associates targets designers who don't need the full feature set of Adobe Illustrator or Aldus FreeHand.

score card

CA-Cricket Draw III

Computer Associates International Inc.
Version tested: 2.0
List price: \$249*
Overall value ♦♦♦♦

The latest version of this PostScript illustration program features better text handling, professional-level PostScript and pre-press tools, improved handling of Encapsulated PostScript files, new drawing tools, and more. It also has the best bound-text features of any illustration program on the market today, although Adobe Illustrator 5.0 should surpass it in this area when it ships later this summer. Computer Associates positions Cricket Draw as a product for users who do not need the extensive functionality of Illustrator or Aldus FreeHand. The problem with this approach is that drawing programs like Deneba Software's Canvas offer similar functionality (and more) in the same price range. Cricket Draw also needs to have support for TIFF files, unlimited undos and a layers function.

Performance ♦♦♦♦

Features ♦♦♦♦

Ease of use ♦♦♦♦

Documentation/support ♦♦♦♦

* Upgrade from Version 1.0, \$69.

RATINGS KEY

- ♦♦♦♦♦ Excellent
- ♦♦♦♦ Very good
- ♦♦♦ Good
- ♦♦ Fair
- ♦ Unsatisfactory

By Philip Bishop

Featuring enhanced control over text, professional-level PostScript and pre-press tools, and improved handling of Encapsulated PostScript files, CA-Cricket Draw III 2.0 from Computer Associates International Inc. convincingly addresses many of the shortcomings of its previous version. Version 2.0 also includes new drawing tools and special effects, as well as support for publish and subscribe.

Cricket Draw's \$249 list price is significantly lower than the other two major PostScript illustration programs on the market, Adobe Illustrator and Aldus FreeHand. While Cricket Draw's heritage means that it will be directly compared with those two powerhouses, Computer Associates does not necessarily see its package as a replacement for Illustrator or FreeHand. Instead, the company views Cricket Draw as a product for designers who do not need all of the functionality found in Illustrator and FreeHand and do not want to pay the higher price of those packages.

Impressive paths. One glaring shortcoming in Cricket Draw 1.0 was its inability to display type bound to a path (bound text was indicated by a line pattern). Now you can not only view bound text, but Version 2.0 sports the broadest range of controls of any illustration program to fine-tune type on a path.

To create bound text in Cricket Draw you can either select your text and path and then choose Bind Text from the Arrange menu, or you can use the new Bound Text tool, which allows you to type directly onto a path, similar to Adobe Illustrator. As is the case with Illustrator, you can edit the text on the path and also move the text to a different location along the path.

In the new Bound Text Attributes dialog box, which you call up by double-clicking on a bound-text object, you can:

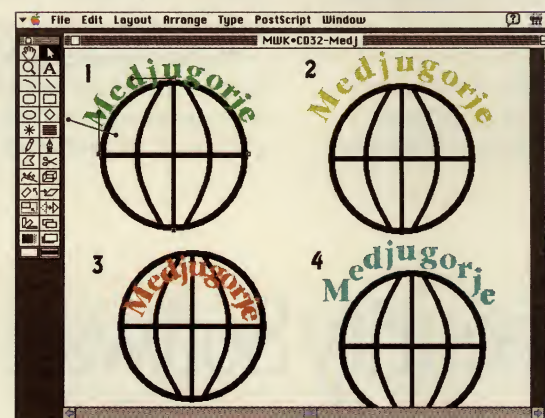
- ▶ Align a text block's baseline, ascenders or descenders to a path.
- ▶ Have text rotate with the path or stand perpendicular to it.

▶ Have transformations (such as scaling) affect the text, the path or both.

In the same dialog you can choose to show or hide the text path and attributes to the path, including PostScript effects. The upcoming Illustrator 5.0 (see MacWEEK, June 7) is expected to offer some of these path capabilities through its Alignment filter.

Cricket Draw III 2.0 also adds the capability to convert text to Bezier-curve outlines, a feature that has long been available in both Illustrator and FreeHand. Outline text is valuable to a designer because it can be reshaped or otherwise manipulated in individual segments.

Less impressive in the area of text handling is Cricket Draw's continued reliance on a separate text window to create text blocks. FreeHand is expected to abandon its text window in its next version, reportedly due



CA-Cricket Draw III 2.0 lets you fine-tune the appearance of bound text in more ways than Illustrator or FreeHand do. You can align text according to its baseline, descenders or ascenders or perpendicular to the viewing plane.

later this year, while Illustrator has for some time allowed users to create text blocks directly in a document.

Pre-press pro. Deficiencies in Cricket Draw's color handling, particularly its lack of a color-separation capability, have been addressed in Version 2.0. In the new Print PostScript Special dialog box you can select to print a document as separations or as a composite (the composite setting may be used to output the final version of some documents and proofs of others). Through three separate dialog boxes, accessed via Advanced Setup Options in the File menu, you can choose the colors you want for printing and over-

printing, as well as select bleed size, screen frequency, angles, crop and registration marks, and other pre-press features. All of these elements are crucial to high-end output and will make it easier for Cricket Draw users to work with service bureaus and printers.

We were also impressed with how well the new Cricket Draw manual covered pre-press issues. It can serve as a valuable reference for novices and professionals alike.

In another link to high-end tools, the new version of Cricket Draw lets you include PostScript code with a drawn object when you copy it via the Mac Clipboard into another program, such as

See Cricket Draw, Page 57

DeBabelizer is tower of image power

Batch processor reads most image formats

By Ben Long

Perhaps it was divine intervention that caused all graphics programs to speak different languages when describing their files. Whatever the cause, Equilibrium Technologies Inc.'s DeBabelizer (whose name was inspired by the Bible's Tower of Babel story) was created to work with the multitude of incompatible graphics formats. At its simplest level, DeBabelizer functions as the ultimate image file translator. Although marred by dialog boxes of biblical proportions, it is capable of batch image processing feats that sometimes seem like miracles.

So comprehensive is the \$299 DeBabelizer's suite of translators that there's no need to even list them. Suffice it to say, if you have a picture created on a Macintosh, IBM PC or compatible (DOS or

Windows), Apple II, Atari ST, Commodore Amiga, Commodore 64, a Silicon Graphics or Sun workstation, or saved in any one of a dozen generic formats, DeBabelizer can work with it. If you somehow find a file that isn't supported, it still

probably won't matter because DeBabelizer can also use third-party Adobe Photoshop Acquire plug-ins.

DeBabelizer's translators are unique because they do some "thinking" along the way. If you

See DeBabelizer, next page

score card

DeBabelizer

Equilibrium Technologies Inc.

Overall value ♦♦♦♦

Version tested: 1.4.02

List price: \$299

At its most basic level, DeBabelizer is a sophisticated graphics translator capable of translating graphics formats from a variety of platforms while intelligently altering aspect ratio, size and color palettes. To this capability, DeBabelizer adds advanced palette controls that enable precise control of dithering and palette remapping. The program also includes extensive batch-processing and scripting functions, which make it a snap to apply any of DeBabelizer's features to a range of files. With scores of features ranging from picture comparisons to applying third-party Adobe Photoshop filters, DeBabelizer's only problems are its disastrous interface and mediocre manual. But even with these drawbacks, the program's excellent features and very good performance put DeBabelizer at the head of its product class.

Performance ♦♦♦♦
Features ♦♦♦♦

Ease of use ♦♦
Documentation/support ♦♦

DeBabelizer

From previous page

open up a Mac PICT file and tell DeBabelizer to save it as a PCX file, DeBabelizer will automatically change the color depth and aspect ratio so the picture will display correctly under Windows.

Batching. As with all of DeBabelizer's functions, file translations can be batch-processed. Hand DeBabelizer a folder full of

Clarix Corp.'s MacPaint documents, and it will process each one per your instructions. To ensure reliability, logs can be kept for errors encountered and files processed. In addition, the batch processor can be told to automatically press the OK button in any dialogs that appear during the batch operation.

We found ourselves spoiled by DeBabelizer's batch capabilities and realized how even simple batch operations are too often left out of Mac applications. DeBabelizer can take a batch file

and create a thumbnail catalog, export each file using Photoshop export plug-ins or create a slide show of the images.

Animators will appreciate Batch Compare, which generates a report of the differences between the images in two lists or the differences between sequential images in one list. The compare function can also generate files containing just the different pixels in an animation. Also handy for animators and QuickTime users is the program's capability to take a batch of files and turn them into a QuickTime movie, automatically scaling and resizing along the way. The

program can also do the reverse: take a movie and turn it into a bunch of image files.

Photoshop filters can be applied to batches of images with full support of Photoshop-compatible accelerators, such as the Charger from DayStar Digital Inc. This is ideal for scanner users who routinely need to despeckle or sharpen large groups of files. DeBabelizer deliberately won't let you use original Adobe plug-ins, however, because of an apparent misunderstanding between the two companies, which we hope will be resolved in the near future.

See DeBabelizer, Page 53

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One of DeBabelizer's many features allows you to remap all of the colors in an image to a custom palette. In this example, the image is being remapped to the Apple II eight-color palette.



IBM says LAN Server for Mac deserves another workout

I am writing in regard to the network operating systems review (*MacWEEK*, May 10). The performance of IBM Corp.'s LAN Server for Macintosh 1.0 product running LAN Server 3.0 had a poor review. As you know, this was because of scalability and performance problems found by Ziff-Davis Labs in its original testing.

Two new modules were taken to ZD Labs on April 23 that dramatically improved scalability and performance. I regret that there was not enough time to include the retest results in the article before going to press.

For the record

An incorrect price was reported in our review of RasterOps Corp.'s Editing Aces Suite (*MacWEEK*, June 7). The price for the complete system is \$4,199.

The performance enhancement will be available to customers via CompuServe, IBM Software Support at (800) 237-5511, OS/2 Bulletin Board and in a Corrective Service Disk this month. Of course, we will continue working on performance improvements for future updates of the product.

LAN Server 3.0 is among the NOS performance leaders in DOS, Microsoft Windows and OS/2 environments. This claim is supported by independent test labs and trade-press labs. We commit to keep LAN Server for Macintosh competitive.

I ask that you please include LAN Server for Macintosh 1.0 in a performance retest for an upcoming *MacWEEK* article at the earliest possible date.

Art Olbert, director
PSP LAN Systems
IBM Corp., Austin, Texas

MacWEEK replies:

We did not receive the enhanced modules in time to add them to our full test cycle, which is why we made only passing mention to them in the review.

In the coming months, we hope to test enhancements to Novell Inc.'s NetWare 4.0 and other products; if it is feasible for us to include an update to LAN Server for Macintosh, we will do so.

Send your comments to MacWEEK Reviews Department, 301 Howard St., 15th Floor, San Francisco, Calif. 94105. MCI (323-1203); fax (415) 243-3650. Include your name, address and phone number. We reserve the right to edit for clarity and length.

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Standard Features	DEC Laser II52	HP® Laser Jet IIIp	Apple LaserWriter® NTR	Apple LaserWriter Select 310
PostScript Level 2	YES	Yes	Yes	No
AppleTalk	YES	Yes	Yes	No
Resident PostScript Fonts	17	35	35	13
Simultaneously Active Ports	YES	No	Yes	No
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No matter what the competition says about our DEC Laser™ II52, you'll swear by it. Call 1-800-DECINFO, ext. 850 to place your order or get the name of your local **digital**™ distributor.

DeBabelizer

From Page 50

Fortunately, many vendors, particularly those offering digital signal processing-based Photoshop accelerators, make their own replacements for popular Photoshop filters. Special effects are available from other third parties: With DeBabelizer, you can automatically

DeBabelizer provides a finer level of dithering control than most programs.

replace the background of every image in a folder with a custom gradient created in HSC Software's Kai's Power Tools, for example.

In case DeBabelizer's predefined batch functions don't do everything you need them to do, the program contains a simple scripting capability. You can create scripts from scratch by choosing menu items, or activate a Watch Me mode to record a series of actions. In addition to chaining together menu items,

the scripting language includes facilities for simple alert boxes, defining selections, delays and other functions that make the facility more than just a macro recorder.

'Up in the sky!' Super Palette is one of DeBabelizer's many palette-handling functions. Pass a batch of files to the Super Palette function and DeBabelizer will generate the best single palette that supports all of the pictures in the batch. This palette can then be saved and used to remap future pictures.

DeBabelizer provides extensive palette controls at all levels of the program. From the Palette menu, you can select different dithering methods, dither just the foreground or background of an image, reduce the number of colors within a palette while trying to maintain the original color balance (in our tests, this worked very well), and replace a range of colors with a single color (which is handy for removing backgrounds). You can also optimize a palette for the Mac, equalize, swap channels, rearrange colors, change contrast, translate the location of every color in the palette, independently control the intensity of each gun in your monitor and create a histogram.

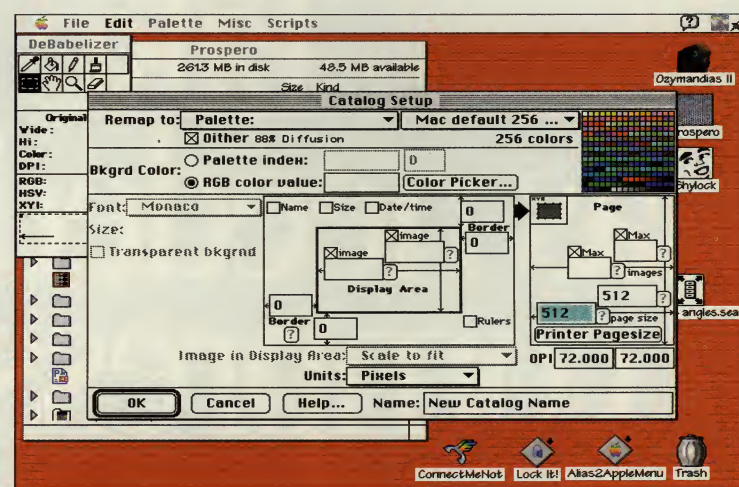
DeBabelizer provides a finer level of dithering control than most programs. Offering two dithering algorithms — diffusion and albic — the DeBabelizer ditherer lets you define dithering percentages. In addition, you can exclude a particular color from dithering. You can do this by manually choosing a color or by telling DeBabelizer to exclude the most popular color. Such precise palette controls are ideal for trying to use photo-realistic images in a predominately eight-bit world.

An interface only a mother

could love. You know you're in trouble when the introduction of a program's manual contains several disclaimers such as "Learning how to best use DeBabelizer ... may take a little time," "DeBabelizer is not designed for the computer novice," and "At first, it may seem that the number of options is a bit overwhelming."

These disclaimers are not to be taken lightly.

The manual states, "DeBabelizer's features have all come from user suggestions and requests," which explains many of the program's unrelated, but useful, features. The arrangement of the program's fea-



While DeBabelizer is very flexible and powerful, Equilibrium needs to "DeBabelize" the interface. The Catalog Setup dialog is one of the application's worst offenders.

tures is haphazard at best, but it is the program's gargantuan dialog boxes that begin to hamper functionality. Some dialogs are simply poorly designed and ugly; others verge on incomprehensible.

Most of the program's interface problems result from too many options being available at one time. For instance, power users will likely appreciate the capability to specify a file type and creator when saving a file, but for everyone else this will be just one more option to worry about. To the program's credit,

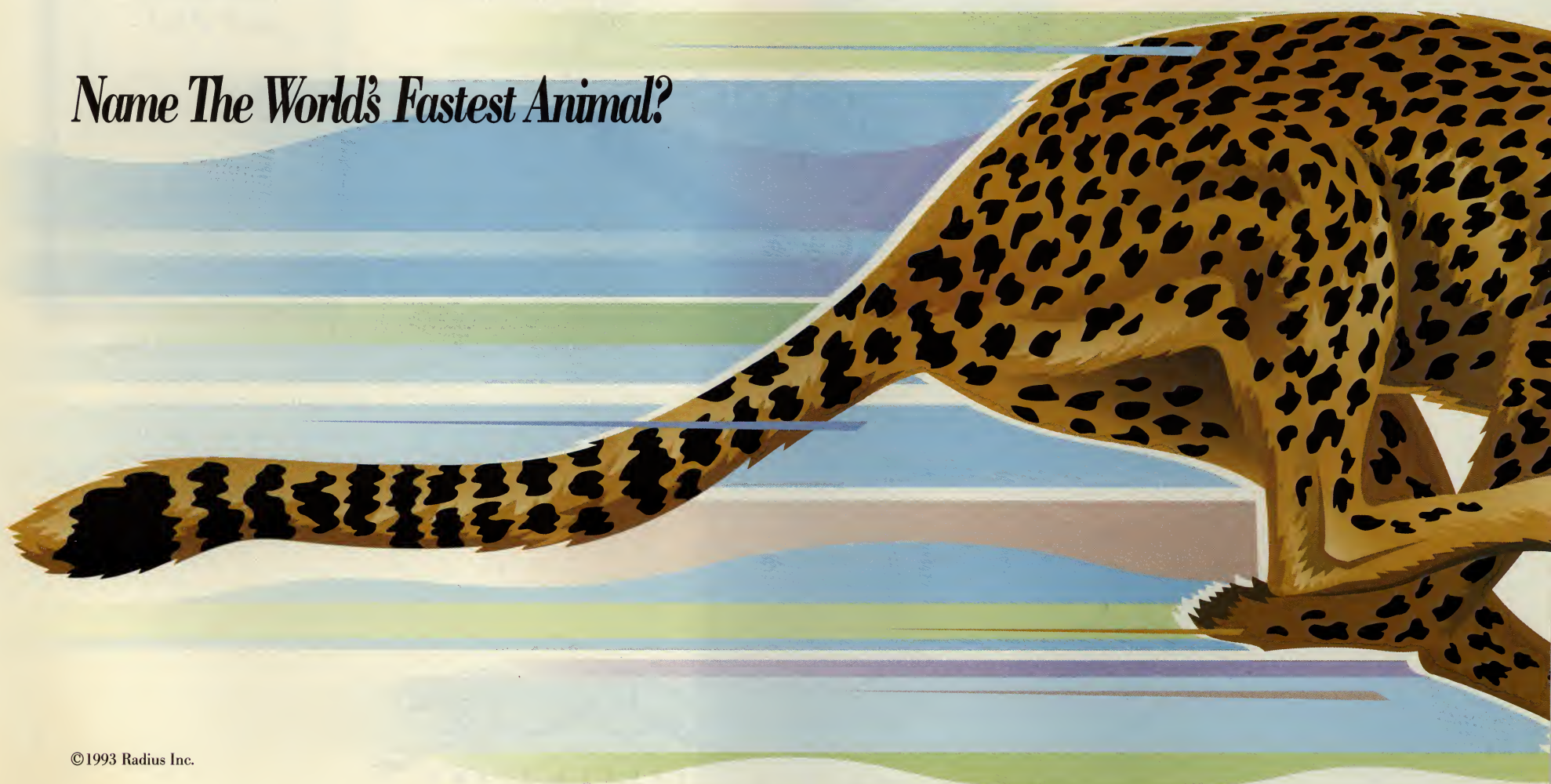
DeBabelizer contains a Simple mode that removes access to all functions except file conversion.

Documentation and support.

The program's manual is not much help. Organized as a reference guide, the manual simply contains a description of each menu option. A companion booklet called Real World DeBabelizing contains interviews with experienced DeBabelizer users and gives an indication of some of the

See DeBabelizer, Page 55

Name The World's Fastest Animal?



Take two as needed for compression anxiety.



It doesn't take much to fill up a hard disk, does it?

Install a few applications, add some fonts and DAs, throw in System 7 and you've surrendered some serious disk space.

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(They also said we "score extra points" for including our zippy CopyDoubler, free, but that's another story.)

AutoDoubler automatically

expands your files as you need them. And opens applications so swiftly you'll hardly know it's there.

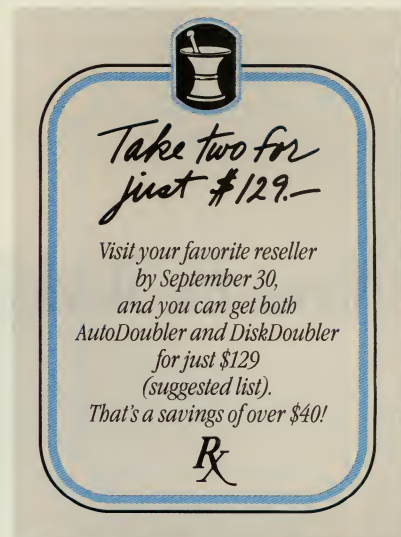
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DeBabelizer

From Page 53

applications of DeBabelizer but very little insight into the use of the program.

Granted, preparing documentation for a program capable of so many different functions is no easy task, but those just learning to

"DeBabelize" may need more help than the existing manuals provide.

Coming soon. As we were going to press, Equilibrium announced that DeBabelizer Version 1.5 would be shipped this month.

The upgrade will include improved color reduction and remap-

ping; improved scaling (both up and down); Batch Place and Save, which will automatically composite a series of foreground images over a series of background images; complete control of all DeBabelizer functions via Apple events; more file formats; color adjustments via hue, saturation and value controls;

and NTSC pixel fixing to optimize images for video.

Upgrades will be \$44.95 for registered users who purchased DeBabelizer before February and \$19.95 for those who purchased the product between February and May. After July 1, upgrades will be \$74.95.

Conclusions. If you do any routine graphics work on the Mac, you'll eventually find a use for DeBabelizer that will save you lots of mouse clicking. Further, you will find that DeBabelizer does a much better job at its chosen tasks than other programs with similar functions.

But the program's functionality goes far beyond simple timesaving. Some of DeBabelizer's capabilities, of which there are too many to list in one review, will truly amaze (see story, left). However, until the program's interface itself is "DeBabelized" to speak a more common Mac dialect, expect to spend time studying dialog boxes and manuals.

Equilibrium Technologies Inc. is at 475 Gate Five Road, Suite 225, Sausalito, Calif. 94965. Phone (415) 332-4343; fax (415) 332-4433. □

So what can you do with DeBabelizer, anyway?

Because Equilibrium Technologies Inc.'s DeBabelizer has such an extensive feature set, it can be difficult to understand what applications are possible with the program. This problem is further compounded by the addition of batch processing and scripting. To give you an idea of how you might use DeBabelizer, here are three examples.

Scanning and DeBabelizing. If you scan a lot of photos, DeBabelizer can make short work of preparing your scans for a layout or publication. Say you have a bunch of scans that need to be a particular size for a book layout. Scan the pictures using your favorite scanning program (or, if you have an Adobe Photoshop Acquire filter for your scanner, scan the pictures directly into DeBabelizer). Next, you might do something like this: Using DeBabelizer's Script Editor, create a script that contains a Resize command to reduce the images to the size you need and a third-party Photoshop Despeckle command to get rid of those

moiré patterns. Next use the Batch Save command and tell DeBabelizer to run your script over each picture that you scanned, and then save the result as a TIFF file. When DeBabelizer's finished, all of your scans will be cropped, despeckled and stashed away as TIFF files.

Optimizing a QuickTime movie. After creating a QuickTime movie in 24-bit color (with, for example, a 3-D program such as Pixar's Typestry), you may want to run the movie on an eight-bit Macintosh but without all that unsightly color dithering. Converting the movie is a two-step process. First, use the Super Palette function to create one 256-color palette that contains all the colors necessary for the movie. Super Palette can parse through each frame of a movie to construct a new palette. Store the palette, then use the Batch Save command to convert each frame of the movie to the new palette and save the results as a new QuickTime movie.

Writing a blockbuster new video game. You're just finishing up that great idea for a video game, but you need some animation for the title character, Colossal Guy.

You get a friend to put on a dopey superhero suit and stand in front of a bare wall. Using a video camera, you shoot video of your friend performing heroic actions and then digitize the footage into DeBabelizer.

Creating a quick script, you tell DeBabelizer to remove the background from each frame, crop the pictures and shrink them to 60 pixels by 60 pixels. Next, you tell the script to dither each picture down to 16 colors using the palette you've designed for your game, and save each file as a PICT.

Finally, you start the batch script operation and, while the computer is automatically processing the 150 frames you chose, take your friend out to lunch as payment for making such a fool of himself. — By Ben Long

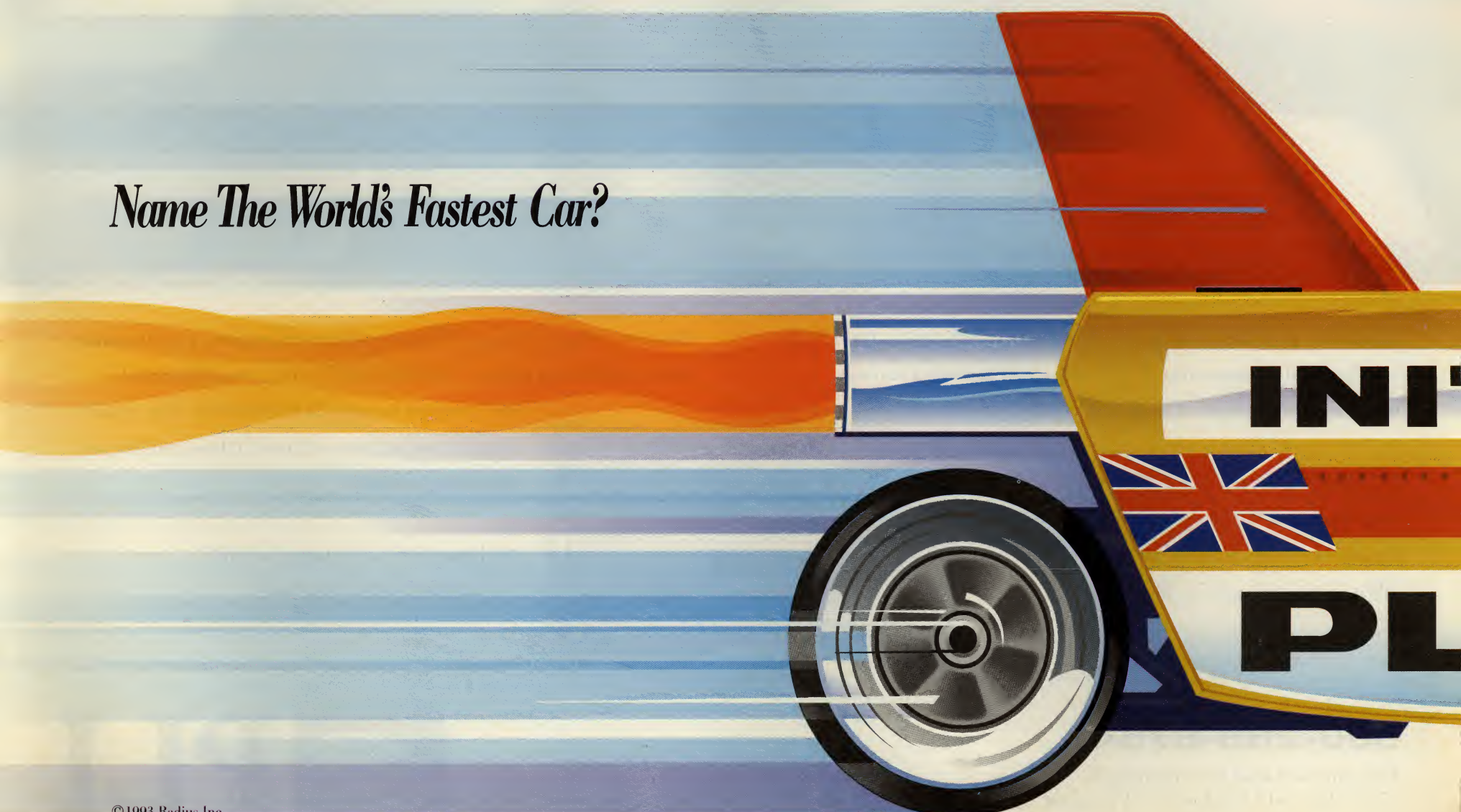
SYSTEM 7 COMPATIBILITY

DeBabelizer 1.4.02

Balloon help	No
TrueType	Yes
Publish and subscribe	n/a
Apple events	No
32-bit addressing*	Yes

*According to vendor.

Name The World's Fastest Car?



This is your drive.

SCSI Bus
Bottleneck

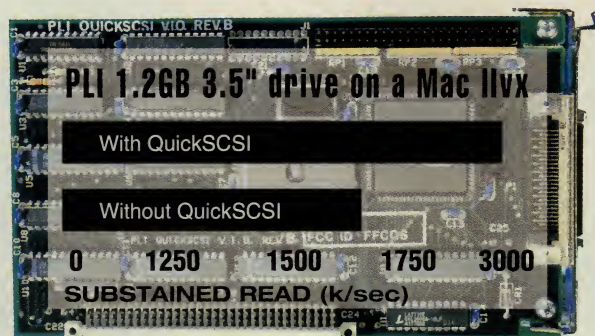


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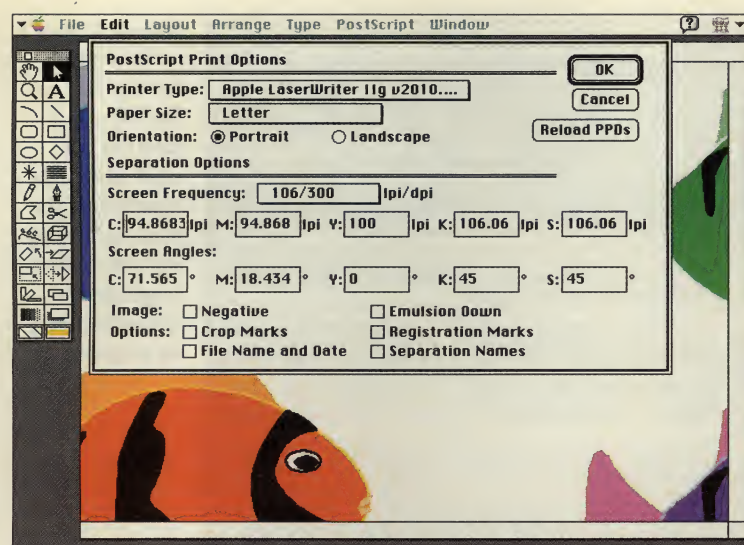
"PLI QuickSCSI is the fastest overall."
— *MACWORLD*, May 1992

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MWK-72



In Version 2.0, CA-Cricket Draw III provides links to high-end output devices, including the capability to let you produce color separations from within the program.

Cricket Draw

From Page 49

Microsoft Word or QuarkXPress. This ensures optimal output when the object is printed to a high-resolution PostScript device. To embed PostScript code you simply hold down the Option key as you select Copy from the Edit menu.

In Cricket Draw 1.0 you were unable to perform transformations (scale, rotate and so on) to EPS

objects; in Version 2.0, you can.

Although there are no changes to Cricket Draw's PostScript window, in which you can view and edit the raw PostScript code, it's worth noting that in it you can determine at a glance which fonts are used in your document. This of course is vital information when working with a service bureau. Neither Illustrator nor FreeHand offers such ready access to this information in their current incarnations.

New tool, new effect. New to Cricket Draw III's toolbox is an Extrude tool. This tool offers a quick and easy way to add 3-D depth to any drawn object in Cricket Draw. You select an object, drag the Extrude tool across it to the angle you want, let go of the mouse, and the extruded object appears. Although artwork created with the Extrude tool isn't technically 3-D (no z axis is created), it allows you to give objects a basic 3-D appearance in a jiffy. Neither Illustrator nor FreeHand offers extrusion straight out of the box, but Adobe Dimensions, when used with Illustrator (see MacWEEK, Jan. 18), offers much more powerful extrusion features than Cricket Draw's built-in capabilities.

One problem with Cricket Draw's extrusion effects is that they are not always effective when working with filled-text objects that have letters with bowls, such as the enclosed ovals of letters like "g" and "P." These simply don't extrude.

With the new Tweening command, you can select the beginning and end shapes and colors of an object, and Cricket Draw will figure out the steps in between. In the Tweening dialog box you set the

number of steps, whether the transformation will be linear or radial (clockwise or counterclockwise), and other choices. Using Tweening is very easy. For example, to create a cone or funnel you simply create a small circle and a large circle and let Cricket Draw do the rest.

Conclusions. On the whole, CA-Cricket Draw III 2.0 is a good PostScript illustration program, but it lacks a compelling reason to choose it over its main competitors. It has a lot of nifty effects, but we could live without them if the program had support for a layers function, style sheets and TIFF. We also want greater undo capabilities (it still has only one level of undo). These are key features of both illustration programs and drawing programs, and all are lacking in Cricket Draw.

Computer Associates' positioning of Cricket Draw III 2.0 places it in a no man's land between the high end of the market — claimed by FreeHand and Illustrator — and the turf of drawing programs such as Deneba Software's Canvas or Claris Corp.'s MacDraw Pro. In many ways, a product such as Canvas is a better competitor to Illustrator and FreeHand than Cricket

Draw is. Canvas offers features that are comparable to Cricket Draw — multiple layers, a separations facility, the capability to set type on a path and superior text handling — but at a lower price. Cricket Draw's main asset is that it has the richest implementation of bound text of any drawing or illustration package. However, that alone is not enough to sustain a product in this class.

Registered users of Cricket Draw can upgrade for \$69. Users of Canvas, MacDraw Pro, Illustrator and FreeHand can upgrade to Cricket Draw III for \$129.

Computer Associates International Inc. is at Computer Associates Plaza, Islandia, N.Y. 11788. Phone (516) 342-5224; fax (516) 342-5329. □

SYSTEM 7 COMPATIBILITY

CA-Cricket Draw III 2.0

Balloon help	No
TrueType	Yes
Publish and subscribe	Yes
Apple events	No
32-bit addressing*	Yes

*According to vendor.

Name The World's Fastest Airplane?

Comparison

Hardware diagnostic utilities try to be part of the solution

Snooper, Peace of Mind and MacEKG help you determine if a performance problem is hardware- or software-related.

By R. Bradley Andrews

Unlike most disk errors, which can be located and fixed by disk analysis and repair programs, hardware problems can be much tougher to correctly identify. We examined three hardware diagnostic packages for the nontechnical user that aim to do this: MicroMat Computer Systems' \$150 MacEKG, Polybus Systems Corp.'s \$149 Peace of Mind and MAXA Corp.'s \$249 Snooper. MAXA also sells Snooper with a NuBus card for \$349 (see story below).

A good diagnostics package should have a range of tests, be easy to use and provide clear test reports. Emergency start-up disks are a nice addition but are not critical. Company technical support needs to be top-notch because the problems uncovered by these utilities can be quite challenging.

Sizing the market. Hardware diagnostic utilities have two major limitations that you must consider when weighing their worth: They work only on otherwise functional

Macintoshes, and they can hope only to identify a problem, not solve it. And their diagnosis may not always be correct. So when you think you have a hardware problem, you have two choices: Use a diagnostic and then call a technical-support person—or skip the first step.

Of the three products we looked at, MacEKG tests closest to the hardware. It directly accesses the different processing chips and other items during its testing. Peace of Mind is in the middle, using some direct calls where appropriate and safe, such as in the SCSI area, as well as normal system calls in other cases. Snooper relies completely on system calls in its tests. Each package includes the capability to export test results into a text file that can be viewed, printed or exported to a database or spreadsheet package for further examination.

Peace of Mind. Peace of Mind runs automatic tests from the desktop. Tests are grouped by device type, such as memory, monitors, SCSI and floppy disks, and processors. A Quick Test runs through the basics, while a Full Test takes at least 30 minutes to thoroughly examine a system. An optional power-user interface gives you explicit control over all available tests, using a Finder 7-style outline listing to show the current test hierarchy.

Peace of Mind also provides



Although it doesn't run tests interactively, the MacEKG control panel lets you select which tests to perform on the next run. Pressing any of the buttons brings up more information about the program.

interactive tests for certain system parts, such as video or printer display. Video tests are not limited to the primary monitor but can check all attached displays.

System, graphics and disk benchmarking provides numerical ratings for system components performance. A comparison number for what Polybus has determined to be normal test results is shown alongside the actual results.

Peace of Mind includes start-up disks for both systems 6 and 7 for those times when your hard drive does not work properly.

Snooper. Snooper, which is also started from the desktop, groups its tests into four functional categories: Disk, which tests SCSI and floppy drives; Video; Audio; and Logic, which covers items that don't fit into the other three.

The tests in each section can be accessed either individually or chained together in a continuous cycle. Cycling time can range from

one second to 10 minutes or can require a press of the space bar before proceeding. As with Peace of Mind, any attached monitor can be tested.

Snooper tracks basic information such as disk-access speed and includes benchmarks for common elements, which can be used to compare information among machines or among different runs on the same computer.

Snooper also provides System 6 and 7 start-up disks and contains built-in programs that give information on "sad Mac" and system error codes. For a limited time, MAXA is including a copy of Datawatch Corp.'s Virex INIT virus extension with either Snooper configuration.

MacEKG. Unlike Snooper and Peace of Mind, MacEKG is not interactive. It normally functions as a control panel, although a stand-alone launcher, MacEKG Access, will let you run the program from your desktop.

See Diagnostic, Page 60

score card

Hardware diagnostic utilities

Three easy-to-use diagnostic utilities provide nontechnical users with a range of tests and benchmarking capabilities for the internal components of any Macintosh. Their usefulness, however, is limited: They can't actually fix problems, only point them out.

► **Snooper** from MAXA Corp. lacks the capability to automate its entire suite of tests, although any of its four functional areas can be automatically executed in sequence. Snooper relies completely on system calls in its tests. Nonstandard benchmarks can be used to compare data among different runs or machines.

► **MacEKG** from MicroMat Computer Systems uses a control panel to check and track system performance at start-up. While it focuses on directly accessing the specific hardware it tests, its lack of interactivity makes the product less valuable for many users.

► **Peace of Mind** from Polybus Systems Corp. has the most complete suite of tests, offering several different levels and options. Its standard interface is easy enough for the novice, while the power-user interface provides complete user control over all the available tests. Both of these factors combine to make it the best choice of the group.

	Snooper	MacEKG	Peace of Mind
Overall value	♦♦	♦♦	♦♦♦
Version tested	2.0.1	2.0.6x	1.2.3
Price	\$249*	\$150	\$149
Performance	♦♦♦	♦♦♦	♦♦♦
Ease of use	♦♦♦♦	♦♦♦♦	♦♦♦♦
Features	♦♦	♦♦♦	♦♦♦♦
Documentation/support	♦♦♦	♦♦♦	♦♦♦

*\$349 for Snooper with NuBus card.

Snooper NuBus card

One limitation of software-based diagnostic utilities is that they can look for problems only on a machine that will at least start up. In an attempt to remedy this situation, MAXA Corp. sells a version of Snooper with a NuBus card that uses LEDs to indicate the basic level of functioning of various Macintosh subcomponents. It lists for \$349.

The card itself is simple and will fit in a NuBus slot on any Mac equipped with one. In addition to seven feedback lights, the card has an Apple Desktop Bus plug connector on the back, which must be connected to the ADB port on the back of the Mac. Although the cable connecting the keyboard can be used, that will obviously render your keyboard useless. A better solution is to use an additional cable to connect to the second ADB port (provided your Mac has an extra port available).

The Mac must be kept open while working with the NuBus card. The lights, which are clearly visible along the top of the card, indicate the status of the power system, the NuBus and the ADB. For example, if system power is perfectly fine, all three power lights will shine bright red. If there's a problem in the power line, the lights will be less bright. The manual explains the meaning of the vari-

ous light levels and suggests approaches to try when the lights indicate a problem, such as removing a card and then rechecking the system.

The board seemed to work well in testing, although it has limited usefulness. The lights, like the "idiot lights" on car dashboards, can tell you only so much. We think, for instance, that if there's a problem in the power line, you would want more feedback than what's provided.

This brings into question the value of this and similar boards. Keeping analyses simple enough for nontechnical users leaves out a lot of the specific information that's required to really figure out what is going wrong. While most nontechnical users can easily install a card or hard drive, they could potentially do more harm than good when working inside the machine. Since most machines with hardware problems are going to end up in the hands of a technical expert, most users are better off using a software-only diagnostic and relying on an expert to find and fix the internal hardware problems targeted by such boards.

MicroMat Computer Systems was supposed to have released a similar board at press time, although it was not received in time for our review. While it deserves a full evaluation, it will likely face the same obstacles because of the nature of the task. — By R. Bradley Andrews

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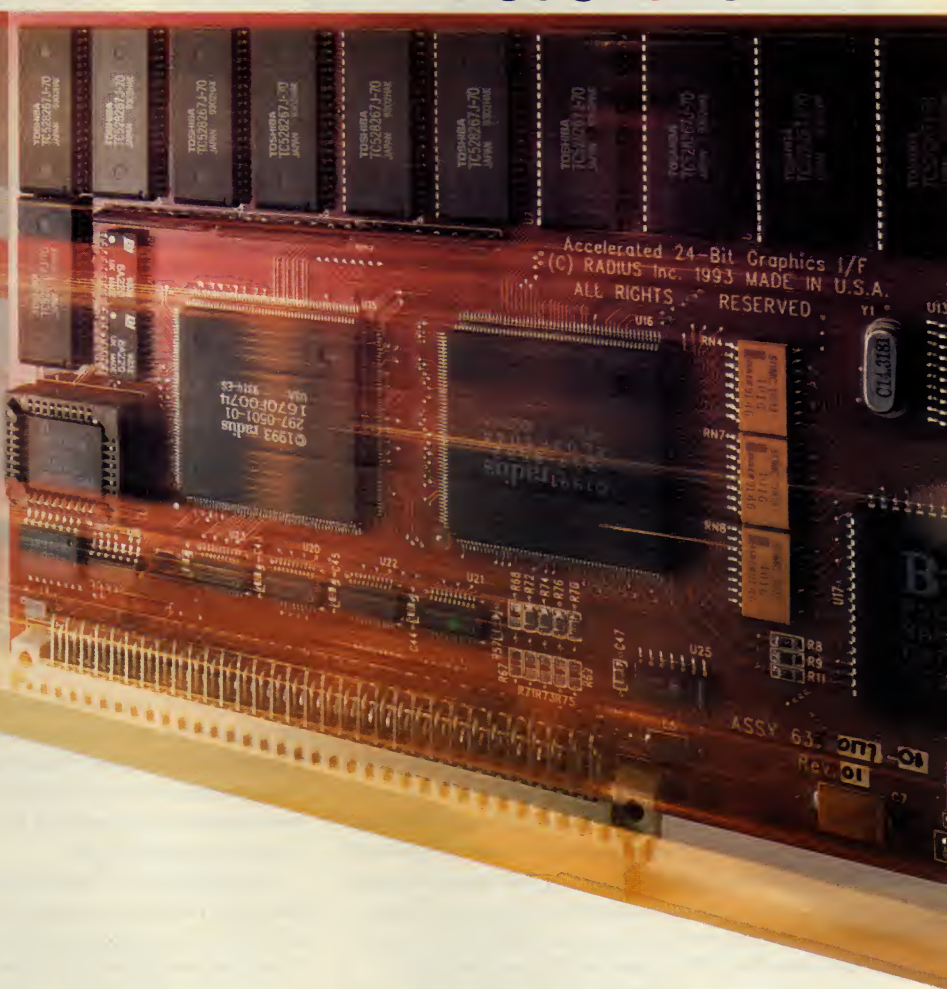
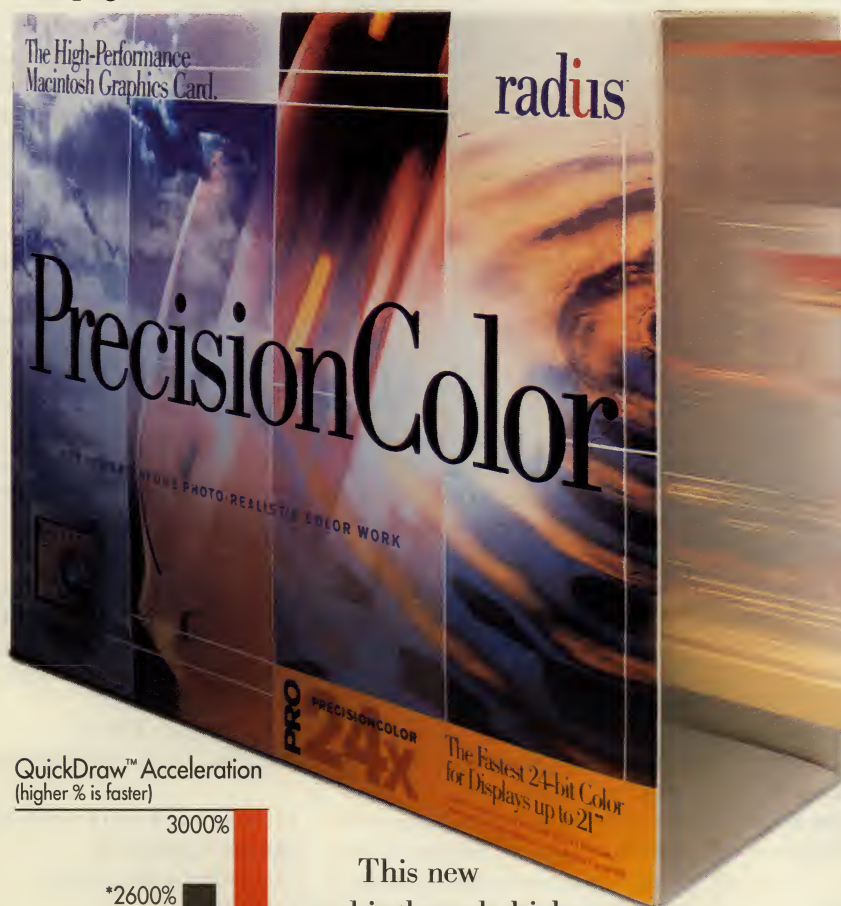
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Diagnostic

From Page 58

The control panel automatically starts a scan at either start-up or when you shut down, but it can also be configured to run once per day or once per week. MacEKG runs a full group of tests, including those for system logic, system components, SCSI media and the video system. Test results are combined to form a MicroMat Performance Rating (MPR) for the computer.

Although the MPR is meaningless by itself, shifts of greater than 10 percent can point to potential system problems. If this occurs, MacEKG will list several possible causes. These "guesses" are not perfect, however, and normal changes in the performance of heavily weighted subsystems, such

as hard disks, can indicate a problem when none exists.

MacEKG can repeatedly restart the machine to help locate intermittent problems. A direct hook is provided to Sophisticated Circuits Inc.'s PowerKey hardware switch, which can act as a timer for restarting the Mac.

The first run of the program, called the Maiden Launch, provides baseline information for system performance. While suboptimal performance during this run might make things look odd on the first few runs, after several runs the overall performance chart will average out and show this as abnormal.

MacEKG also includes two stand-alone applications that give information on the "sad Mac" and system error codes.

Testing 1,2,3. We did our main testing on a Mac IIx with four external SCSI devices and two monitors. We ran each product several times through both its full suite of tests and some individual ones.

A red flag was raised when we tested Snooper. A bad hard drive passed the seek test, even though Snooper's other device tests failed completely and the drive was not mountable. MAXA technical support claimed this was because the seek test got "correct" system return values, but since the activity light on the drive remained dark during the entire test sequence, this explanation is questionable.

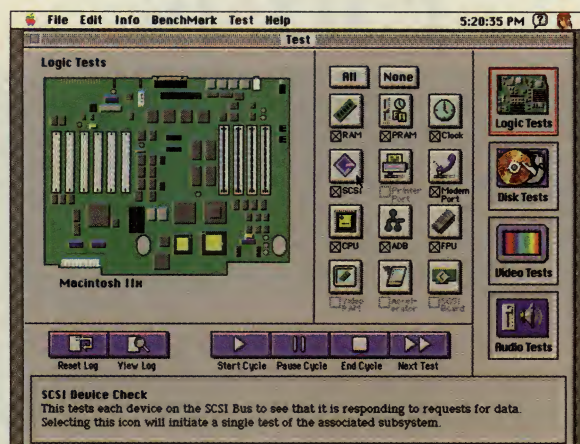
Other than that, our tests were successful, indicating no problems when there were none and pointing them out when there were.

With MacEKG, an internal Quantum hard drive varied its speed slightly during testing, something MicroMat said is peculiar to these drives. This caused MacEKG's MPR rating values to range within a 10 percent window. We found this speed shift a bit unnerving; the company claims this is normal performance.

We performed further tests on a PowerBook 100 with 4 Mbytes of RAM and a 40-Mbyte hard disk and discovered a problem with each of the products. Peace of Mind's keyboard test was incom-



The simple interface for Peace of Mind provides icons for each test type. Successful test runs are indicated with a Passed message under the matching icon.



Each test in Snooper can be run by clicking its icon. You can control the execution of the complete cycle by pressing VCR-like buttons.

How they stack up with users

Testing diagnostic utilities can be somewhat difficult — unless your Macintosh is loaded with hardware troubles, you can't possibly verify all of a product's detection capabilities. To round out our analysis, we spoke with users of each of the three products we reviewed — MacEKG from MicroMat Computer Systems, Peace of Mind from Polybus Systems Corp. and Snooper from MAXA Corp. Each user works with a variety of Macs.

Doug High has significant experience in locating problems with Mac subcomponents. The author of "Troubleshooting Your Macintosh" from M&T Books/MIS Press, he runs his own Mac repair training company, High Tech Training International of Ellicott City, Md. Each year more than 2,000 people go through his training. In polls conducted at the end of each class, the students have consistently rated MacEKG higher than Peace of Mind and Snooper, as well as Apple's own limited-distribution repair program. According to High, "Only those users who prefer a more interactive approach do not prefer MacEKG."

High, who rigs computers with specific errors for his class, found that "Snooper only caught a few of the errors, Peace of Mind caught several more, but only MacEKG caught them all." He reserved judgment about Peace of Mind because it's a fairly new product but found little to recommend about Snooper. "Snooper doesn't perform all the tests it claims, and I found its performance to be below standard," he said.

Dale Shimono, a systems engineer at Intesolve, a full-service Mac support shop in Fresno, Calif., finds MacEKG useful for detecting problems such as performance degradation. "I connect the CPU to be tested to an external hard drive with MacEKG loaded and use the timer reboot to locate difficult-to-find problems," he said.

Mike Millburn, MIS manager at Xiphias of Los Angeles,

finds Peace of Mind useful when a problem with the system arises during software development. He has also been impressed with the service Polybus provides. "They knew what they were talking about and would get back quickly if they didn't know an answer," he said. Although he has found the Mac itself very stable, hardware from several different vendors often creates the need for this additional support.

Glen Stevens, a technical consultant at Integrated Logistics Systems Ltd. of Lexington, Mass., a systems integration shop, likes the power-user interface in Peace of Mind. Testing with the utility has properly located a bad SIMM and pointed the company to a required logic-board replacement on a Mac IIsi.

On the other hand, Stevens said he didn't find MacEKG's resolution messages to be helpful, and he didn't have much success running it for an extended time. "I ran it on a machine with an intermittent problem for an entire weekend and got no useful information," he said.

Mitch Krayton, president of Digital Resources, a Mac value-added reseller in Van Nuys, Calif., calls hardware diagnostics "useful when necessary." He uses Snooper in-house and finds it effective in supporting the large number of computers his company installs. "It helps to trap the tough intermittent problems we come across when you're combining elements from 10 to 30 different vendors as we do."

He also installs Snooper on systems when they are shipped out. "When a problem arises, we have users run the tests, print the log file and fax it to us. This saves a lot of time."

A key shortcoming of hardware diagnostics was brought up by High. "Hardware utilities are only good for marginal failures," he said. "They only work when the machine is bootable in the first place. When a machine is dead, they are about as good as a coat hanger in a locked car." — By R. Bradley Andrews

patible with the PowerBook's keyboard, although a later beta version tested fixed the problem and is available to all registered users. All of MacEKG's tests worked, but a problem with the parameter RAM kept generating a Configuration Changed indication at the end of the test cycle. MicroMat identified this as a problem with the specific version of the PowerBook's ROM and is working on a patch. Snooper initially refused to run, but disabling Symantec Corp.'s Norton Essentials for the PowerBook eliminated the conflict and allowed Snooper to work correctly.

Documentation and support.

The documentation for each package was quite reasonable. Each offers suggestions on what to do for specific problems, although what you can do is fairly limited since many problems require hardware replacement. Technical support for each product was also fine.

Conclusions. The strongest value of these utilities is that they can determine that a performance problem is not in the hardware. Composite memory chips are known to have problems, and any new memory is immediately suspect when problems arise. If the memory checks out OK, you know that something else is causing problems in the system. Although most users will not be willing to pay the price for this extra assurance, those who instinctively blame the hardware may find this extra insight worth the cost.

The control panel-based MacEKG doesn't give users much control; it is the only diagnostic tool of the three we reviewed that is not interactive. Proper threshold levels can help give early warnings

of unexpected system changes. However, MacEKG's problem indication did not seem as useful in testing. Ten percent seems to be a rather large variance in an MPR rating, and it happened several times during our system testing.

Although Snooper is interactive and very usable, its tests appear basic, and the capability to test only a single subsection at a time is a strike against it. We're also concerned that a bad hard drive went undetected through a seek test.

Peace of Mind provides the most comprehensive features and most flexible interface. It's more interactive than Snooper, includes a greater number of actual tests and seems to carry out a more exhaustive test of the system. Its dual interface makes it more accessible to novices while retaining power-user flexibility. We recommend it as an additional tool to people who service several Macs. □

Product Info

MAXA CORP.

Snooper 2.0.1: \$249; with NuBus card: \$349
116 N. Maryland Ave., Suite 100,
Glendale, Calif. 91206
Phone (818) 543-1300 or
(800) 788-6292; fax (818) 543-0104

MICROMAT COMPUTER SYSTEMS

MacEKG 2.0.6x: \$150
7075 Redwood Blvd., Novato,
Calif. 94945
Phone (415) 898-6227 or (800) 829-6227; fax (415) 897-3901

POLYBUS SYSTEMS CORP.

Peace of Mind 1.2.3: \$149
150 Westford Road, Tyngsboro,
Mass. 09879
Phone (508) 649-7396 or (800) 695-4239; fax (508) 649-7397

SYSTEM 7 COMPATIBILITY

	Snooper	MacEKG	Peace of Mind
Balloon help	No	Yes	No
TrueType	n/a	n/a	n/a
Publish and subscribe	No	No	No
Apple events	No	No	No
32-bit addressing*	Yes	Yes	Yes

*According to vendor.



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Tektronix

Comparison

Looking for text in all the right places: Programs find your files

We compare Alki Seek, Retrieve It!, GOfer and On Location text-search utilities.

By Steve Michel

Searching for a file on your desktop can be a real nuisance, especially if you can remember only that the text of the file contained a reference to one topic or another. This review takes a look at four programs dedicated to finding the files you want: ON Technology Inc.'s On Location 2.0.1, Claris Corp.'s Retrieve It! 1.1, Alki Software Corp.'s Alki Seek 2.1 and Microlytics Inc.'s GOfer 2.0. Two of these products — On Location and GOfer — haven't been updated in some time, and neither company plans a new release soon; the other two updates are new.

We evaluated four aspects of these programs: how flexible they are in letting you specify text and search areas, such as folders, volumes and file types; how well they perform; how they display found files; and what you can do with files once you find them, such as copy or make aliases or open them with the program that created them.

score card

Text-search utilities

Dedicated text-search programs let you quickly search your desktop for specific text and files. Among the four programs reviewed, the variety of search and display options ranges from too few to too many, but all perform well and are easy to use.

► **Alki Seek** from Alki Software Corp. offers the broadest range of options, and it does so without cluttering its interface with them. While the price is right, the program has difficulty with some compressed files and does not search in the background.

► **Retrieve It!** from Claris Corp. is the second-fastest searcher and has a powerful set of text operators. Its relatively inflexible file-searching options and lack of support for XTND filters keep this from being a great product.

► **GOfer** from Microlytics Inc. features a good set of text operators and a useful Browse command. It doesn't display formatted files, however, and you can't open a file with the program that created it.

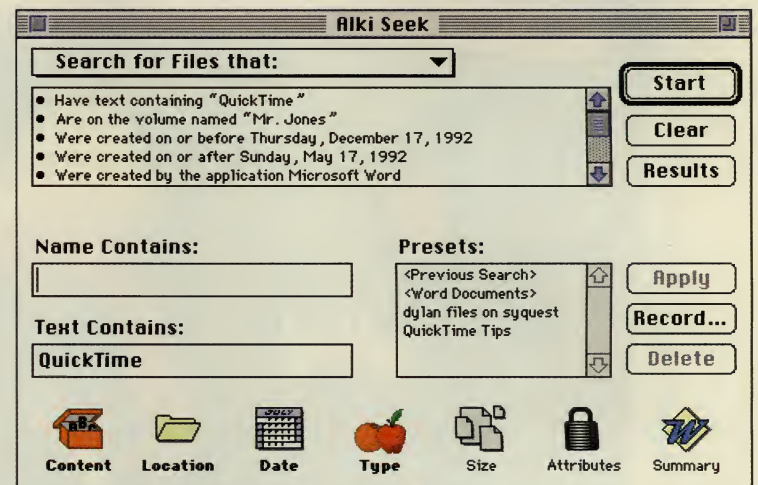
► **On Location** from ON Technology Inc. is the best of the lot. Although it lacks flexibility in specifying search and text areas, it's redeemed by a unique preindexing feature, which delivers the fastest searches of the four products. The indexing extension does require a lot of RAM, however.

	Alki Seek	Retrieve It!	GOfer	On Location
Overall value	◆◆◆◆	◆◆◆◆	◆◆◆◆	◆◆◆◆
Version tested	2.1	1.1	2.0	2.0.1
Price	\$39.95	\$89	\$79.95	\$129.95
Performance	◆◆◆	◆◆◆◆	◆◆◆	◆◆◆◆◆
Ease of use	◆◆◆◆	◆◆◆◆	◆◆◆◆	◆◆◆◆
Features	◆◆◆◆	◆◆◆	◆◆◆	◆◆◆
Documentation/support	◆◆◆◆	◆◆◆◆	◆◆◆	◆◆◆◆

We found one problem quickly. We used Aladdin Systems Inc.'s StuffIt SpaceSaver to automatically compress older data files. These compressed files must be automatically decompressed by SpaceSaver before they can be searched, which slows searching to a crawl. (Users of Fifth Generation Systems Inc.'s AutoDoubler will also run into this problem.) For our tests, then, we moved 198 folders containing 942 files (a total of 34 Mbytes) to a SyQuest cartridge, where they remained uncompressed.

While developers of text-search programs are not necessarily responsible for addressing this problem, it does hinder the programs' performance. Only On Location in general isn't affected; it decompresses files when it builds indexes, so it doesn't run into the same speed problem during searches.

Retrieve It! Claris' \$89 Retrieve It!, part of the Claris Clear Choice line, ranks second in speed among the text-search applications we looked at. The program has a powerful set of text operators, including some unique ones, such as the Within operator, which lets you specify that two words occur within a specific number of words of one another. You can also specify that a word occur before or after a second word, or that a word occur



Of the four text-search utilities reviewed, Alki Seek gives you the greatest number of options for specifying search text and search areas.

more than a certain number of times in a document.

However, Retrieve It! is relatively inflexible in letting you specify which files to search. It can search through all file types or a single file type, but it cannot search only two or three file types, which most of the other programs can do.

Although the program can hide nonprinting characters, Retrieve It! does not show formatting. It's surprising that Claris, the originator of XTND, does not support it in this product, especially when two of its competitors do. Finally, the documentation is thin and lacks an index.

Alki Seek. Alki Seek, at a list price of \$39.95, gives you more file-specification options than you will probably ever use; you can search through all files or those of specific types. You can also search through files of specific sizes, creation or modification dates, and in specific locations. You can even specify Finder labels and file flags

that are normally visible only with Apple's ResEdit. For those who use Microsoft Word, Alki Seek can also search data contained in a document's Word Summary Info feature.

Alki Seek is unique among these text-retrieval programs in its support of grep, the pattern-matching and replacement language found in Unix (and in Nisus Software Inc.'s Nisus). Alki Seek also supports "meta characters" for finding special characters (such as page breaks and nonbreaking spaces) in Word files.

Once it finds the files, Alki Seek lets you use XTND filters to display them; you can also copy or open any found files. Its capability to create aliases of all the found files makes it easy to save the list of files for later use. The program also lets you save the specifications for complicated finds in named sets, in case you need to repeat the searches later. At 38 pages, its documentation is the longest and most detailed of any of these programs.

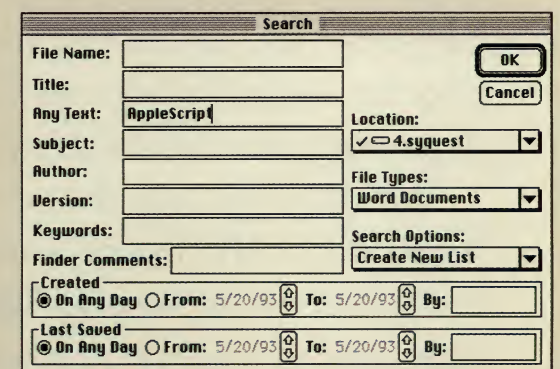
Word feature: All you need?

If you're using Microsoft Word, you may not need a separate text-search utility: Word's Find File command can do much of what these other programs do.

In our tests, Word performed better at searching all files than Alki Software Corp.'s Alki Seek and Microlytics Inc.'s GOfer. When Word finishes a search, it displays the found files in a scrolling list and lets you examine the contents of those files. Files are not displayed with formatting intact, nor does Word make any attempt to hide nonprinting formatting characters in non-Word files.

Once it finds a file, Word doesn't let you do much with it. You can look at a file's contents and open it with Word, but once you do that, you lose the list of found files. Word also falls short in one other area; it doesn't allow for any operators when searching for text within files.

On the other hand, Word's Find File feature lets you search specifically for text in the Summary Info portion of Word documents. If you use this Word function, which lets you assign keywords to documents, you'll notice how quickly Word searches these summaries. Other programs will find text in the Summary Info portion of the data fork of a Word document, but only Word and Alki Seek



Microsoft Word's Find File command lets you search for summary information or for text in files.

let you specifically look for Summary Info information.

In short, if you're using Word, you should evaluate its Find File function carefully before deciding to spend money on a separate program.

Microsoft Corp. is at 1 Microsoft Way, Redmond, Wash. 98052. Phone (206) 882-8080; fax (206) 883-8101. — By Steve Michel

AppleSearch to debut this year

Apple will offer its own search-and-retrieval software this year. AppleSearch, which the company plans to ship in the third quarter, will let networked users rapidly access massive quantities of data on a server.

Based on an engine developed by Personal Library Software Inc. of Rockville, Md., AppleSearch stores documents in their native format and uses XTND technology, originally developed by Claris Corp., to open them. The PLS engine creates an index of all words in a document, ranked by frequency of occurrence and by their relationship to all other words. Indexing occurs at a rate of about 15 Mbytes per hour; an index typically consumes as much space again as the original document.

Users can create personalized agents to search the contents of documents using natural-language queries and/or Boolean searches. Searches can occur at scheduled intervals or on demand. Results are returned in a list ranked by relevance to the query or in a newspaperlike format.

Apple will offer an application programming interface and a newspaper customization kit for third parties. A developer could, for example, use AppleSearch to build an application that delivers a daily personalized newspaper with information from an on-line stock-market wire.

Pricing has not been set.

Apple also plans to offer AppleSearch to Windows and DOS clients but has not specified a delivery date. — By Carolyn Said

All that said, we found two things that made Alki Seek less useful. First, it has even more trouble than the others working with files compressed by StuffIt SpaceSaver. SpaceSaver changes the type and creator for files it has compressed but tricks the Finder and other Mac applications into seeing those files with their original types and creators. Alki Seek, however, refuses to be tricked — it displays the files with the SpaceSaver type and creator. This means that, for example, if you want to search Microsoft Word files, those that have been compressed will be missed by Alki Seek. Alki Software is aware of this problem and is working on a solution, but it could not specify when the fix would be forthcoming.

A second problem is generally minor, unless you are searching a lot of data: Alki Seek will not let you switch to a different program while a search is taking place.

GOfer. GOfer, which lists for \$79.95, has a good set of text-search operators, including AND, NOT and NEARBY. It also includes a

Flex/Close option, which eliminates the need to match case or spelling exactly. This option can be a big help if you can't remember the exact spelling of a word, but if you know what you're looking for, you're better off not using it because GOfer will find a lot of text you don't want. For example, searching for "dylan" with the Flex/Close option found the phrase "called last night," with the bold letters highlighted.

GOfer is not as flexible as some other utilities about letting you specify which files to search. It does let you specify file types, and you can include several types in one search (such as all Word files or all text files), but it doesn't let you specify files of a certain date or date range. It also features a very useful Browse command, which simply shows you all files (or all files of certain types) and lets you manually look through them.

GOfer is also limited in what it lets you do with a file once it's found. It does not use XTND technology to display formatted files, nor can it open a file with the program that created it. You can, however, copy a file to the desktop,

where you can manually open it. Unique to GOfer, too, is its capability to extract text in found files to separate files. You can also save lists of files.

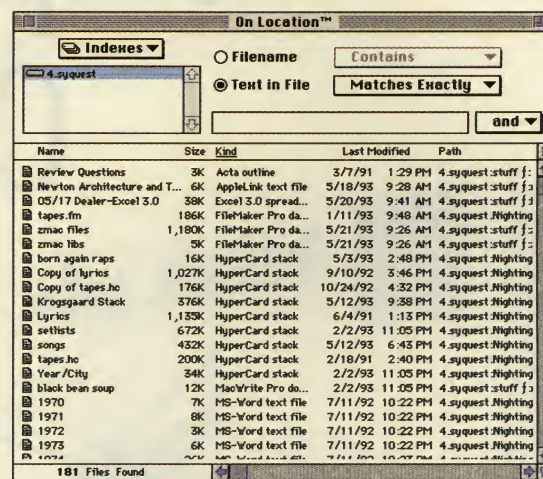
The short manual is useful, with good advice about optimum search strategies, but the index is inadequate; you often have to page through the manual to find what you want.

On Location's unique preindexing feature is great, allowing very fast searches and a solution to our compressed-file problem.

On Location. The \$129.95 On Location has a unique feature: A background extension builds and maintains an index of the text in all files on your hard disk or other volumes. This means, as noted earlier, that On Location doesn't have to decompress files before a search. A nice benefit of this, too, is that some developers (notably, Apple) have been including On Location indexes to their CD-ROM products on those discs, which greatly speeds searches on notoriously slow CDs.

It took about 11 minutes to build an index on our SyQuest disk. That may seem like a long time, but when you spread it out over numerous disk searches, it pays off. Less worthwhile to many users is how much memory the extension uses: 248 Kbytes. If you plan on using On Location often, this is probably worth it; for infrequent users, probably not.

On Location does deliver speed: As soon as you start typing a word to find, On Location begins searching its index. In our search, On Location found all the files containing the text in 20 seconds. The program lets you specify



On Location shows you a list of all the indexed files on disk until you enter search text. As you enter text, the program narrows this list to those files that contain that text reference.

whether found text should exactly match the text you type, or only the root text, and it supports AND and OR operators. Other than this, On Location offers meager support for specifying which files to search and the text that can be searched. But since it's so fast, this lessens the problem.

On Location uses XTND filters to display the files it finds with all formatting intact, and it can copy files to any location and open them with the program that created them.

Performance. The performance standout among these products is On Location, which is not surprising given its preindexing feature. Among the rest of the products, Retrieve It! was fastest when asked to search all the files on the disk, doing so in about three and a half minutes; Alki Seek took four and a half minutes to perform the same search, and GOfer nearly seven minutes. However, when the search was restricted to only Microsoft Word files, Alki Seek was the fastest, taking only one minute, eight seconds — five seconds faster than Retrieve It! and nearly a full minute faster than GOfer.

Conclusions. While not as rich in features as some of the newcomers, GOfer still performs its tasks well. But its lack of flexibility in specifying searches and displaying files limits its usefulness.

We were impressed with Alki Seek's range of features, but it needs another revision to address some flaws and increase its speed. Retrieve It! has the potential to be a great product, and we would not

hesitate to recommend it if it had more-powerful file-specification options and used XTND to display the contents of formatted files. We especially like its speed.

The standout is On Location. Its unique preindexing feature is great, allowing very fast searches and a solution to our compressed-file problem. On Location's only drawback is its high RAM requirement. For those who often need to search large disks and who can afford the RAM footprint, it's the tool of choice. □

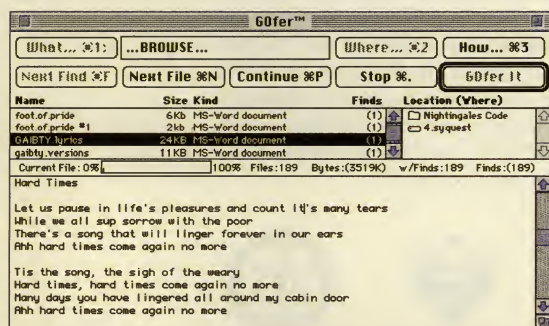
Product Info

ALKI SOFTWARE CORP.
Alki Seek 2.1: \$39.95
300 Queen Anne Ave. N., Suite 410,
Seattle, Wash. 98109
Phone (206) 286-2600 or (800) 669-9673; fax (206) 286-2785

CLARIS CORP.
Retrieve It! 1.1: \$89
5201 Patrick Henry Drive, Santa Clara,
Calif. 95052
Phone (408) 727-8227
or (800) 544-8554

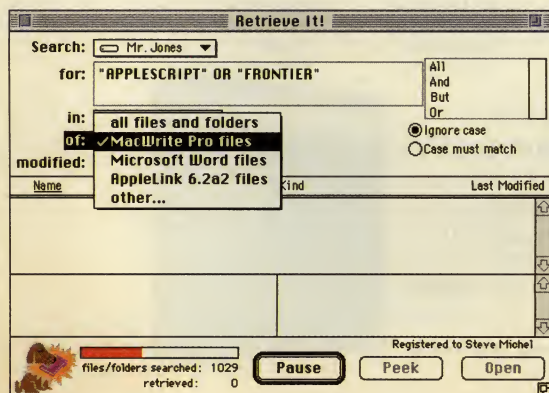
MICROLYTICS INC.
GOfer 2.0: \$79.95
2 Tobey Village Office Park, Pittsford,
N.Y. 14534
Phone (716) 248-9150;
fax (716) 248-3868

ON TECHNOLOGY INC.
On Location 2.0.1: \$129.95
155 Second St., Cambridge,
Mass. 02141
Phone (617) 876-0900
or (800) 548-8871;
fax (617) 876-0391



GOfer lets you find and browse through the contents of all files of a specific type or list of types, but it doesn't have the broad range of features found in the other products.

Retrieve It! allows you to search either all files or files of a single type, but you cannot choose a middle ground. For example, you cannot search both text and Microsoft Word documents.

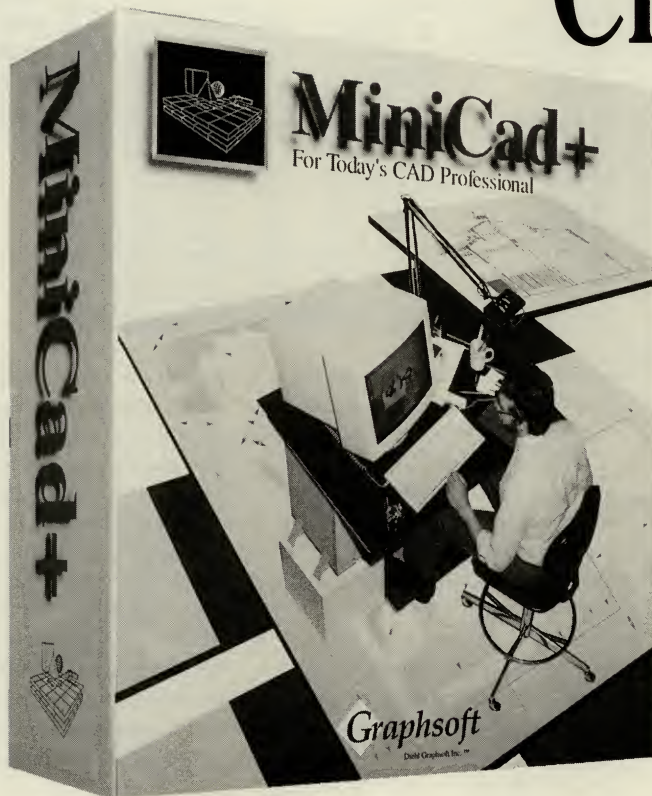


SYSTEM 7 COMPATIBILITY

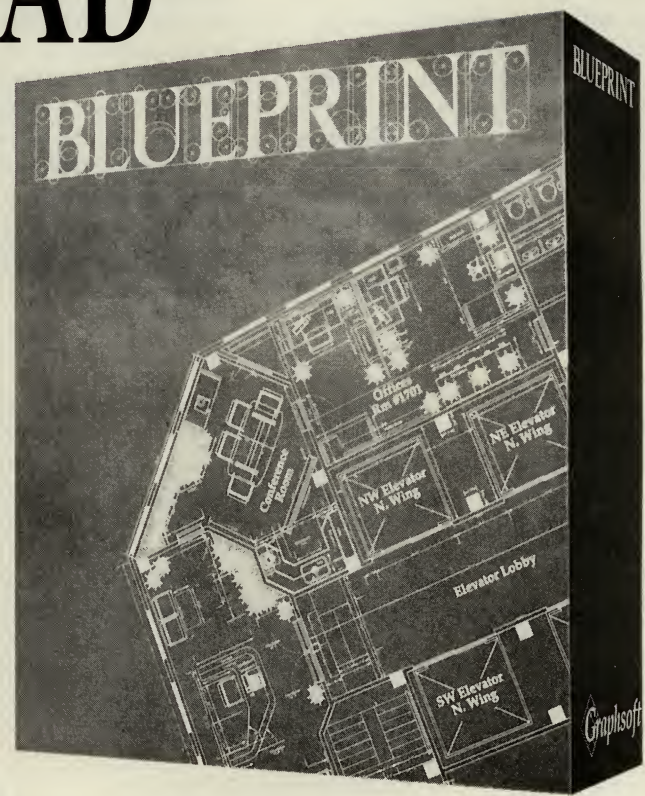
	Alki Seek	Retrieve It!	GOfer	On Location
Balloon help	Yes	No	No	Yes
TrueType	n/a	n/a	n/a	n/a
Publish and subscribe	n/a	n/a	n/a	n/a
Apple events	No	No	No	Yes
32-bit addressing*	Yes	Yes	Yes	Yes

*According to vendor.

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| <input type="checkbox"/> color by object or layer | <input type="checkbox"/> tolerancing |
| <input type="checkbox"/> DXF translator - free | <input type="checkbox"/> unlimited saved views |
| <input type="checkbox"/> unlimited layers | <input type="checkbox"/> hatching |
| <input type="checkbox"/> global symbol editing | <input type="checkbox"/> polylines |
| <input type="checkbox"/> on-line prompts | <input type="checkbox"/> classes |
| <input type="checkbox"/> unlimited drawing space | <input type="checkbox"/> export EPSF |
| <input type="checkbox"/> pick-up and put-down attributes | <input type="checkbox"/> free Claris CAD translator |
| <input type="checkbox"/> selection by properties | <input type="checkbox"/> round wall caps |
| <input type="checkbox"/> auto-insert symbols in walls | <input type="checkbox"/> edit inside groups |
| <input type="checkbox"/> hierarchical symbol library | <input type="checkbox"/> scale by layer |
| <input type="checkbox"/> add & subtract surfaces | |
| <input type="checkbox"/> fractional feet and inches option | |

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| <input type="checkbox"/> orthogonal or perspective views | <input type="checkbox"/> roof & slab tools |
| <input type="checkbox"/> work in wire-frame or solid | <input type="checkbox"/> 3D smart cursor |
| <input type="checkbox"/> walkthrough and flyover tool | <input type="checkbox"/> auto sectioning |
| <input type="checkbox"/> create 3D view from floorplan | <input type="checkbox"/> multiple view |
| <input type="checkbox"/> sweeps, extrusions & meshes | |

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| <input type="checkbox"/> export reports to text, merge, dif, & sylk | <input type="checkbox"/> auto update reports |
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| <input type="checkbox"/> pan by scroll bars or hand | <input type="checkbox"/> chamfers |
| <input type="checkbox"/> color by object only | <input type="checkbox"/> tolerancing |
| <input type="checkbox"/> DXF translator - extra charge | <input type="checkbox"/> 9 saved views |
| <input type="checkbox"/> unlimited layers | <input type="checkbox"/> hatching |

3D CAD:

none

Integrated Database/Spreadsheet:

none

Programmability:

none

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2D CAD:

- | | |
|--|--|
| <input type="checkbox"/> smart walls | <input type="checkbox"/> fillets |
| <input type="checkbox"/> Smart Cursor for locating snaps | <input type="checkbox"/> editable fills |
| <input type="checkbox"/> advanced auto-dimensioning | <input type="checkbox"/> beziers |
| <input type="checkbox"/> editable line styles | <input type="checkbox"/> wall-join |
| <input type="checkbox"/> pan by scroll bars or hand | <input type="checkbox"/> chamfers |
| <input type="checkbox"/> color by object or layer | <input type="checkbox"/> tolerancing |
| <input type="checkbox"/> DXF translator - free | <input type="checkbox"/> unlimited saved views |
| <input type="checkbox"/> unlimited layers | <input type="checkbox"/> hatching |
| <input type="checkbox"/> global symbol editing | <input type="checkbox"/> on-line prompts |
| <input type="checkbox"/> polylines | <input type="checkbox"/> export EPSF |
| <input type="checkbox"/> unlimited drawing space | <input type="checkbox"/> scale by layer |
| <input type="checkbox"/> file compatible with MiniCad+ | <input type="checkbox"/> classes |
| <input type="checkbox"/> fractional feet & inches option | <input type="checkbox"/> round wall caps |
| <input type="checkbox"/> auto-insert symbols in walls | <input type="checkbox"/> edit inside groups |
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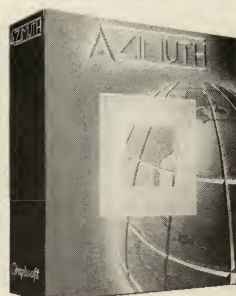
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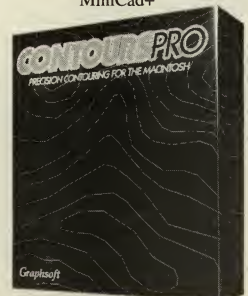
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Emergency recovery tools: Raising data from the dead

*Even users
who are
diligent
about backup
can be
victims of
catastrophic
crashes.*

By Bruce Schneier

Any user who has suffered a disk failure can attest to the importance of regular backups. No matter how vigilant a backup program you implement, however, a disk crash between backups can still destroy valuable data.

"You stress backups, but in most cases people don't do them," said Mark Goldenberg, senior development engineer at Hughes Aircraft Co. of Fullerton, Calif. "Or the file they destroyed or deleted is one they created that day." In situations such as this, emergency disk recovery tools can prove invaluable.

Several Macintosh utility bundles include tools that can resurrect lost data and take measures to keep catastrophic crashes at bay. Symantec Corp.'s Norton Utilities for Macintosh, Central Point Software Inc.'s MacTools Deluxe, Fifth Generation Systems Inc.'s Public Utilities and Datawatch Corp.'s 911 Utilities (sold in a package called SuperSet Utilities) all include tools to diagnose and repair crashed hard drives, recover deleted files, and optimize drive performance. The differences

among the optimization and recovery tools in these packages are subtle, and each contains other utilities (see chart, next page), so choosing among them can often be a matter of personal taste.

All these vendors offer site licenses or quantity licenses for their products. Additionally, a Macintosh manager may use a single copy of any of the file recovery products to diagnose problems on an unlimited number of machines — as long as the program is deleted from the machine afterward.

Proactive vs. reactive repair. It's a sad fact that file undeletion and file recovery won't work all the time (see story below). In some cases, there just isn't enough information left on the drive to reconstruct a file.

"This is not a problem with the recovery products; this is just the way the Macintosh works," said Joel Black, head of Macintosh utilities technical support at Symantec.

One way to increase the odds is through proactive measures. All the



CHAD KUBO

packages mentioned above come with utilities that can scan a hard disk for indicators of potential problems that could lead to disk failure. "Disk problems often start out small and slowly get worse," said David Shayer, president of Sentient Software of San Carlos, Calif., and the lead programmer for Public Utilities. "The earlier you find it, the easier it is to fix."

Public Utilities and MacTools can automatically scan in the background for problems and perform unattended repairs. MacTools is the only one of the utili-

ties that will let you undo any repairs it has made.

For some, the capability to perform unattended repairs is a plus. "[With Public Utilities] I get the added bonus of having my hard disks scanned automatically for problems instead of waiting for them to occur," said Mike Byrne, graduate student at the Georgia Institute of Technology in Atlanta.

For others, issues such as cost make proactive disk checks unrealistic because they would require a copy of the software for each machine or a very diligent systems administrator. "I would like to do proactive file recovery, but it's a cost issue," said Hughes' Goldenberg. "Putting the utility on 500 Macs is a pretty good hunk of change." Instead, he relies on an automatic backup program and disk recovery utilities that work after a problem arises.

For others, it's an issue of compatibility. "All the proactive tools I've tried run into conflicts with my other extensions," said Dick Barton, network manager at Northrop Corp. of Hawthorne, Calif. "It's easier to run without." Barton said he uses regular backups and reactive disk recovery utilities.

However, the consensus seems to be that preventive maintenance is important. "Regular use [of preemptive utilities] is like tuning your car; it runs better and crashes less frequently," said Thomas Jackson, assistant professor at the Medical College of Georgia in Augusta.

Optimization. In addition to scanning disks for problems that could cause disk crashes, utility
See Data recovery, next page

How file undeletion works

A disk is divided into blocks in which files are stored. Information about every file's data is stored in a drive's catalog file. When you delete a file, the data blocks of the file are not overwritten. Instead, the record of the file is deleted from the catalog file and the blocks are freed for use by other files. Until these blocks are overwritten, it is often possible to undelete the file, even without its catalog information.

Although the Macintosh system tries to store files in adjacent disk blocks, it will fragment a file (store pieces of it in nonadjacent areas) if there isn't enough contiguous space on the hard disk.

There are preventive techniques that make undeletion easier. Central Point Software Inc.'s MacTools Deluxe, Symantec Corp.'s Norton Utilities and Fifth Generation Systems Inc.'s Public Utilities use catalog mirroring. When a user deletes a file, a copy of the catalog entry is saved in a file. The backup copy of the catalog should contain enough information to piece various file fragments together.

Utilitron Inc.'s Guaranteed Undelete goes a step further. It stores a copy of the deleted file in a hidden folder and deletes it only when the system needs the disk space. If you have to undelete a file, it's already there.

Even if you are not using catalog mirroring or some other type of deletion-tracking utility, it is sometimes possible to recover a lost file. The simplest undeletion technique scans all blocks on the hard disk looking for a file beginning. If the file's blocks are not frag-

mented or overwritten, chances of recovery are good. If a file is fragmented, however, you'll find its initial contiguous blocks and nothing else.

Defragmenting a disk can both help and hurt chances of recovering a deleted file. Once a disk is defragmented, it is more likely to store file blocks sequentially. Defragmenting a disk, however, tends to overwrite deleted files, considerably reducing the chances of recovery. Public Utilities' optimizer is the only utility that preserves the data of deleted files during defragmentation, and that is only if you had previously implemented its catalog mirroring feature.

On 800-Kbyte floppies, each block of a file points to the block that follows it, whether or not that block is adjacent. This allows you to undelete files by doing a tag scan, which can follow the trail of fragmented blocks. Tag scans are not possible on high-density floppies and other hard disks.

Utilities use different techniques to attempt recovery of a fragmented file. Most backup products let you do a text scan. If you're writing a letter to Aunt Millie, for example, you can look for blocks of text that contain the words "Aunt Millie." You'll have to piece them together yourself, and you won't find blocks without that particular text string. Of course, this doesn't work with graphics files.

"It's also worth scanning the file looking for directory information," said Joel Black, head of Macintosh utilities technical support at Symantec Corp. "Sometimes directory information is left on the disk. It's just the luck of the draw." — By Bruce Schneier

Data recovery *From previous page*

manufacturers recommend regularly defragmenting the files on your hard drive. Disk defragmentation reorganizes all files on a hard disk so that they can be accessed more quickly and more efficiently (see story, right).

This improvement is most noticeable with applications that require extensive disk access. "QuickTime movies play back

Ken Flaton almost lost three years of research, including his dissertation, in a disk crash one week before his Ph.D. thesis defense.

much more smoothly with a clean, organized hard drive," said Gary Goldberg, Mac user and Unix system administrator at the U.S. Census Bureau in Washington, D.C.

Many Macintosh owners don't defragment their hard drives. "I don't do it much because I have a 400-Mbyte drive and not much time," said Roger Pitcher, computer graphics specialist at Grey Advertising of New York.

Since optimizers continuously copy and delete files on the disk, some people fear that a hardware or software problem could result in a loss of data. "I wouldn't optimize

without first doing a full backup. I'm a little nervous about where files are going," said Northrop's Barton.

However, all manufacturers stress the safety of their optimization software, and people who regularly optimize do not report problems. "In the three years I've been using Norton Speed Disk, I've never lost a single byte of data — even when the power cut off in the middle of a run last year," said Steve Godun, graphics designer at AJ Images of Piscataway, N.J.

And for those who claim no time for optimization, there is a solution. ALSoft Inc.'s DiskExpress II (sold separately or bundled with Power Utilities) can be set to automatically defragment drives every night. It checks and verifies each drive, and if it finds a problem, it will not continue without user consent. DiskExpress II also can automatically defragment at a prespecified day of the week.

"All our server drives are error-checked and defragmented every evening," said Roy Roper, assistant director for the School of Life Sciences at the University of Illinois in Urbana-Champaign.

Edgar Knapp, professor of computer science at Purdue University in West Lafayette, Ind., uses DiskExpress II to automatically defragment his drive and Public Utilities to automatically scan his drive for problems. "These programs work without my intervention, and that's what I need," he said.

The media is corrupt. Many factors can affect a drive to the point of failure, and often it's impossible to discover what caused a problem after it happens. "It's very difficult to diagnose a problem after you've recovered from it," said Symantec's Black.

Black listed several common causes of disk failure, including viruses, problems with the lubricants on magnetic disks, and power failures and brownouts. Many errors stem from the SCSI

How defragmentation works

When a hard drive is empty, the system stores files in adjacent disk blocks. As files are deleted, blank areas are left on the disk where file blocks used to be. When a disk nears full, there is often no continuous array of disk blocks long enough to store a new file. In this case, the system fragments the file, storing file blocks in different parts of the hard disk.

Files stored in adjacent blocks — unfragmented files — can be accessed more quickly. A fragmented disk slows down disk access and sometimes destroys chances for file recovery (see story, previous page).

"Depending on the speed of the hard drive and the particular machine, defragmenting your hard drive can up to double your performance," said Paul Smethers, Macintosh section manager at Central Point Software Inc.

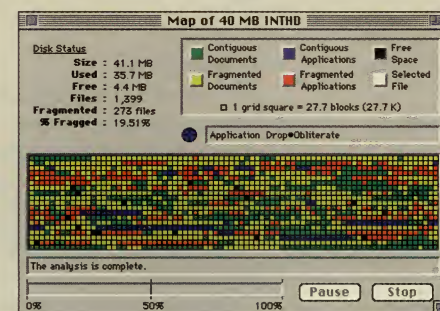
Disk optimization software reorganizes files by storing them in continuous blocks on the drive. To reduce the amount of disk fragmenting in the future, defragmenting utilities moves all files to one end of the drive, creating

a large pool of free space at the other end.

All the optimization programs give different options for reorganizing files. You can optimize by date, storing old files that are unlikely to change in one area; by file, storing particular files in one area; or both.

"I feel the best way to optimize is by date," Smethers said. "If you haven't changed a file in a year, you're not likely to modify it again."

— By Bruce Schneier



MacTools CP Optimizer displays a color-coded rendition of your hard disk before optimization.

port, he said, including SCSI ID conflicts, improper termination, excessive cabling length and bad SCSI cables. Often, directory data can be corrupted by system crashes, system extension conflicts or applications.

After a disk failure, however, most users don't care what happened — only whether the situation can be rectified.

Ken Flaton, postdoctoral student at the Institute for Neurocomputing at Ruhr University in Bochum, Germany, almost lost three years of Ph.D. research, including his dissertation, in a disk crash one week before his thesis defense. "[Symantec's] Norton Utilities saved my life," he said.

Keith Sproul, microcomputer manager at Union Carbide Corp. of Bound Brook, N.J., keeps an array of utilities to recover data from the 500 Macs he supports. "I've recovered crucial files from

several hard disk crashes," he said. Most people don't make regular backups, Sproul said, and without disk recovery software these files would have been lost.

The utilities are much better at recovering text files than complex files, such as graphics, or more-complex database files. "I've never seen these things work successfully with heavily formatted files," said Howard Klein, member of technical staff at GTE Telephone Operations in Irving, Texas.

Apple's Disk First Aid, which comes free with every Mac, is perhaps the simplest diagnostic tool for floppies and hard drives. Its file recovery capabilities are limited compared with commercial packages. According to users, Disk First Aid is a good first bet if you are having disk problems, and it can find and fix disk problems about two-thirds of the time.

See Data recovery, Page 68

Erasing files for good

Sometimes users are interested in destroying data so that nothing can recover it. Several utility bundles, such as Symantec Corp.'s Norton Utilities, Datawatch Corp.'s SuperSet Utilities, Utilitron Inc.'s Guaranteed Undelete, ASD Software Inc.'s TrashGuard and Robert Gibson's shareware 7.0 Plus Utilities include file erasure tools.

Most file erasure applications follow the guidelines in the Department of Defense's document NCSC-TG-025: "A Guide to Understanding Data Remembrance in Automated Information Systems." They overwrite data blocks three times: first with all ones, then with all zeros and finally with a repeating zero-one pattern.

For the average user, this is overkill. Simply overwriting a file once is enough to protect it against undelete utilities. Many file erasure utilities provide both options: single overwrite and the Defense Department recommendation.

For the ultraparanooid user, sometimes even this isn't enough. "There are some projects where the customer specifies that the only way to sanitize a hard drive is to physically destroy it," said Mark Goldenberg, senior development engineer at Hughes Aircraft Co. of Fullerton, Calif. "I shred a lot of hard drives."

— By Bruce Schneier

Disk maintenance software packages

PACKAGE PUBLISHER	OPTIMIZATION	DISK RECOVERY	BACKUP	DIAGNOSIS AND REPAIR	BUNDLED TOOLS
MACTOOLS DELUXE 2.0 Central Point Software Inc.	✓	✓	✓ (scheduled)	✓ (scheduled)	Virus detection, disk activity indicator
NORTON UTILITIES FOR MACINTOSH 2.0 Symantec Corp.	✓	✓	✓ (scheduled)	✓	Directory assistance, file finder, partitioner, data/disk security
PUBLIC UTILITIES 1.0 Fifth Generation Systems Inc.	✓	✓		✓ (scheduled)	Application launcher
SUPERSET UTILITIES 1.0 Datawatch Corp.	✓	✓		✓	Data/disk security, remote access and control
POWER UTILITIES 1.0 ALSoft Inc.	✓				Suitcase manager, partitioner, menu enhancer, disk diagnostics, screen saver, disk activity indicator

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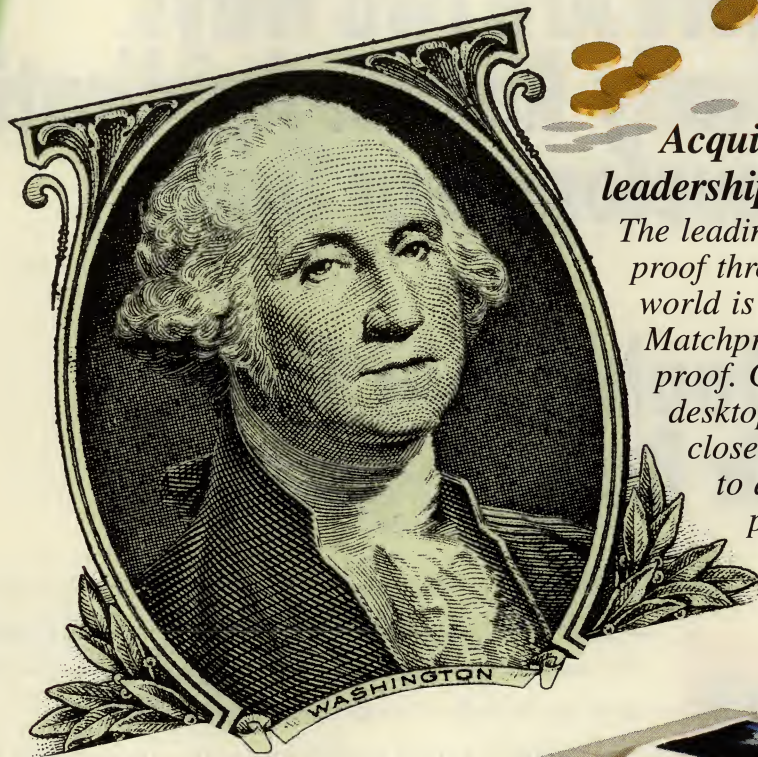
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Data recovery

From Page 66

When it comes to choosing one disk recovery product over another, no clear winner emerges. All the commercial recovery utilities can outperform Disk First Aid, but it is often hit-or-miss on which package can fix a particular problem (see MacWEEK Reviews, Aug. 10, 1992).

"It's a question of which battles you're fighting. Different programs solve different

problems in different ways," said Paul Smethers, Macintosh section manager at Central Point Software.

For this reason, many Macintosh owners use more than one utility. "All of our support people are encouraged to have two or three of the packages," said Union Carbide's Sproul. "1st Aid Kit (predecessor to Datawatch's 911 Utilities) is the best there is for recovering floppies. MacTools seems to be the most thorough for doing tests."

University of Illinois' Roper said: "If you have a problem, run them all. They'll all find different things."

Often, a choice can be based on more-subtle reasons. "We use Norton Utilities [instead of MacTools Deluxe] because it seems less intimidating to the secretarial staff," said Medical College of Georgia's Jackson.

"I used to use Norton Utilities and MacTools; now I use Public Utilities," said Purdue's Knapp. "It seems to be more thorough

than the others, and it works unobtrusively in the background."

The backup alternative. Even with the entire arsenal of disk recovery tools, however, sometimes nothing will bring back lost data. The best insurance against loss is a regular backup schedule.

"I had a drive fail with 160 Mbytes of data and was only able to recover 400 Kbytes of miscellaneous stuff," said Hughes' Goldenberg. Restoring all the applications and data files from backup copies took eight hours, he said.

"The best recovery strategy is routine backup," Roper said. "Our success rate is higher by going to a backup from the day before."

Several of the disk recovery utility packages offer backup tools. MacTools and Norton both contain backup utilities that can be set to automatically back up at a prespecified time. □

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Power Utilities 1.0: \$129

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fax (713) 353-9868

APPLE

System 7.1 (includes Disk First Aid): \$99

20525 Mariani Ave., Cupertino, Calif. 95014

Phone (408) 996-1010 or (800) 776-2333

ASD SOFTWARE INC.

TrashGuard 1.02: \$79

4650 Arrow Highway, Suite E6, Montclair, Calif. 91763

Phone (909) 624-2594; fax (909) 624-9574

CENTRAL POINT SOFTWARE INC.

MacTools Deluxe 2.0: \$149

15220 N.W. Greenbrier Parkway, Suite 200, Beaverton, Ore. 97006

Phone (503) 690-8088 or (800) 445-4208;

fax (503) 690-8083 or (800) 626-2778

DATAWATCH CORP.

SuperSet Utilities 1.0: \$149.95

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Phone (919) 490-1277; fax (919) 490-6672

FIFTH GENERATION SYSTEMS INC.

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ROBERT GIBSON

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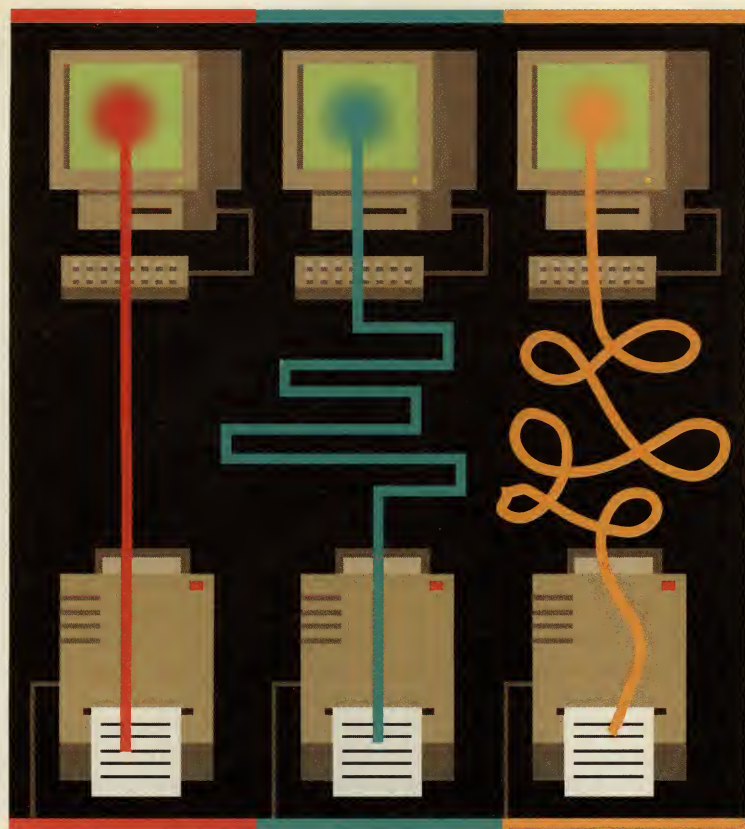
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MacInTouch RIC FORD

Building new bridges to Macintosh printers

A new PostScript printer driver is now available under several Version 8 monikers, and it offers improvements for both old and new printers.

PRODUCTS

Heavy traffic. Printing in the Macintosh environment is beginning to rival the complexity of Mac computing itself. Perhaps that shouldn't be surprising, with printers that have their own processors, programming language, RAM, ROM, multiple network interfaces and even hard disks.

Getting documents onto paper requires a printer driver to bridge between these printing systems at one end and the Mac system at the other. This file is critical to the printing process, and there have been recent changes in this part of the Mac environment.

The replacements. A new-generation driver for all PostScript printers is available now from both

Apple and Adobe Systems Inc. Apple calls the driver LaserWriter 8.0, and Adobe calls it PSPrinter 8.0. Hewlett-Packard Co. also distributes the software as "Version 8.0" drivers for PostScript-equipped configurations of its LaserJet, PaintJet and DeskJet printers.

The 8.0 drivers are the first to support PostScript Level 2, with its many new features and performance improvements, but owners of older Level 1 printers also gain significant benefits, including the possibility of speedier printing.

Apple is recommending LaserWriter 8.0 for its entire line of PostScript printers, from the original LaserWriter to the new LaserWriter Pro 630 (with the exception of the LaserWriter Select 310).

Bits and pieces. In the new driver architecture, individual printers are defined by separate PostScript Printer Description (PPD) files, which function a little like System 7.1's hardware enablers. Fortunately, the printer driver has a generic configuration that facilitates printing when an appropriate PPD is not available.

Apple includes PPDs only for its own printers, but Adobe supplies PPDs for a wide variety of third-party printers, including some HP printers. Files for other HP printers, such as the LaserJet 4M and 4Si, must be obtained from HP.

Apple sells LaserWriter 8.0 and its PPDs in a \$24.95 package available by phone at (800) 769-2775, Ext. 7873. Apple's software is also available through AppleLink and Apple's developer ftp server on the Internet.

Adobe's package is priced the same as Apple's, and it may be ordered through a formidable automated phone system at (800) 833-6687.

Adobe's PPDs, without the driver, are available on CompuServe at location CIS:ADOBE and from the company's developer ftp and list servers on the Internet.

Phone HP at (303) 353-7650 to get Version 8.0 drivers, or download the files from CompuServe at location CIS:HPSPECIAL.

Getting it on. Apple's Installer script for LaserWriter 8.0 leaves the previous LaserWriter driver in place, so you can switch back and forth between them in the Chooser.

The script puts PPD files into a Printer Descriptions subfolder within the System folder.

The Finder is not smart enough to place files in this location automatically when you drop them on the System folder, but the location is not critical.

The second step in the setup process starts with selecting LaserWriter 8.0 in the Chooser and finding an active printer. Then you can click the Setup button and choose a PPD that matches the printer.

One button in the setup dialog queries the printer and attempts to choose an appropriate PPD automatically. I couldn't get this to work, despite renaming the PPD file, but it is easy to select the file manually.

PPDs have a strictly defined format, but their content is plain text, which can be viewed with a text editor or word processor.

The goods. Once you obtain the software components and install them, several useful, new features appear in various places around the Mac's user interface.

The Chooser's new Setup button leads to a Printer Info button that returns a report on the chosen printer, with its PostScript level,

Ask David Ramsey

QT doesn't sound so good

Q. I'm recording QuickTime movies and getting the audio through the Mac's sound-in port, but the sound quality is poor. What can I do?



A. Audio output from a VCR or laser disc player can overdrive the Mac's microphone port, which is designed for the nonamplified input provided by Apple's own microphones.

QuickTime aficionado Neil Shapiro has found an elegant solution: the Mono L-Pad from Radio Shack (catalog number 40-980). This is a small volume control you install between the Mac and an amplified audio source; it allows control of the input volume. Best of all, it's cheap: about \$6.

Q. Which would speed text scrolling more: a faster CPU or an accelerated video card?

A. All current Macs (except the PowerBook 165c) have fast built-in video that uses video RAM. The dual-ported VRAM is connected directly to the processor's data bus, and the data can be moved around on the screen with amazing speed. There are a few accelerated video cards that scroll even faster, but they're expensive.

If you have a Mac that requires a NuBus video card or a Mac IIci or IIsi, which use the system's dynamic RAM for video, you would benefit much more from an accelerated video card than a CPU accelerator.

Don't install with MountImage. Many Mac power users are familiar with MountImage, Steve Christensen's handy control panel that mounts disk image files on the desktop, making the tedious creation of physical disks unnecessary. It's even possible to install software by running the Installer from one of these mounted disk images.

However, in some ill-defined circumstances, the installation fails. I've seen several reports of problems installing QuickTime 1.6 from a mounted disk image file. The installation appeared to proceed correctly, but QuickTime didn't work. Until a promised new version of MountImage is released that fixes this problem (the current one is Version 1.2b2), you're safer using DiskCopy to make physical disks for installation.

Please send questions to David Ramsey on CompuServe: 76702,335 or to Ask David Ramsey, c/o MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105.

RAM configuration, resolution and other features.

Page Setup now offers the option of printing "2 Up" or "4 Up" — reducing the image size to print two or four pages on one sheet.

The Print dialog itself provides several new features, and it can save print files to disk in a choice of configurations: PostScript, Encapsulated PostScript or EPS with Preview; Level 1 or Level 2; with or without fonts embedded

in the file; and ASCII or binary.

New printing options include PostScript error-reporting choices, and you can choose a different paper tray (or manual-feed slot) for the first and subsequent pages with some printers.

As these Version 8.0 drivers spread through the Mac community, we'll be looking harder at performance and compatibility, but initial results look promising, and the cost of entry is right. □

Comments on MacInTouch are welcome at 7 Parmenter Ave., Maynard, Mass. 01754. Phone (508) 897-2621. Address electronic mail to RICFORD on AppleLink or MCI Mail; to 72511,44 on CompuServe; or on the Internet to 72511.44@compuserve.com. Join us on-line in the MacWEEK Forum at location ZMC:MACWEEK on CompuServe or ZiffNet/Mac.

Script Manager

Of libraries and the Finder

One of the big disappointments in the shipping AppleScript compared with the widely distributed beta is the absence of the "scriptable Finder." This Finder supported a wide range of Apple events so AppleScript could perform quite a few file-management functions. All is not lost, however. Apple continues to work on a scriptable Finder, slated for release late this year.

```
property finderLib : ""
if class of finderLib ≠ script then
    copy (path to extensions as string) to extFolder
    copy extFolder & "scripting additions:finderlib" to libPath
    set finderLib to load script alias libPath
end if

on idle
    tell finderLib
        emptyTrash()
    end tell
    return 5 -- run again in 5 seconds
end idle
```

Still, the delay is unfortunate. As the most-used Mac application, the Finder is an ideal candidate for scripting. A scriptable Finder could make many tasks easier, provide a showcase for how scripting can be used and serve as an introduction to scripting.

In the meantime, there are two alternatives:

► **Frontier.** If you want to do a lot of scripting of file-management functions, the best solution is Frontier from UserLand Software Inc. of Redwood City, Calif. Through scripting, Frontier supports Finder operations as varied as specifying views of folders and setting and getting labels. Further, UserLand's FinderMenu utility allows scripts to be attached to the Finder's menu bar.

► **FinderLib.** AppleScript does come with a library of compiled routines, called FinderLib, that gives you more scripting control over the Finder than AppleScript alone. (FinderLib is in a folder called Scripting the Finder on the AppleScript release disks.) The library contains 18 useful routines for Finder tasks, such as copying, making aliases and listing the contents of folders.

The easiest way to use FinderLib is to attach it to your scripts as a "script object." A script object is a variable that contains a compiled script. Messages are sent to this compiled script through the same Tell structure used to send messages to applications. FinderLib's documentation covers how to attach FinderLib, but the recommended code asks you to locate the file every time you recompile a script that calls it. I've found a better way.

Inside the Extensions folder, the AppleScript Installer script creates a folder called Scripting Additions, which usually holds extensions to AppleScript. I've found this folder to be a good location for the FinderLib library because it's a standard place that AppleScript can find easily. AppleScript comes with routines that give you paths to the System, Control Panels and Extensions folders. Using these, you can locate the Scripting Extensions folder, and thus FinderLib, quite simply.

The first six lines of the accompanying script (at left) do the finding. The first line declares the finderLib property, making values held in it persistent. If the property does not already contain a script, the script is loaded from the Scripting Additions file. This could be handled in one line, but I've shown it as three for readability.

The actual function of the accompanying script is to empty the Trash every five seconds, using FinderLib's emptyTrash handler. If you save this as a compiled script, you can keep the resulting application open all the time. (Hey, it's better than Hello World.)

When the application is opened, the first lines run, loading FinderLib if necessary. When an idle message is sent, the idle handler sends the emptyTrash message to the FinderLib script object. The idle handler then returns the number 5, which the application shell magically interprets as meaning it should run again in five seconds. You can put any number you want there.

This application could be called an agent because it stays open and does something for you at specific intervals. Several sample agentlike scripts come with AppleScript. □



STEVE MICHEL

If you have any user scripting comments or questions, contact me on ZiffNet/Mac (72511,151), AppleLink (SMICHEL), or at MacWEEK's mailing address.

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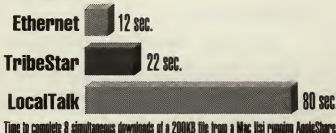


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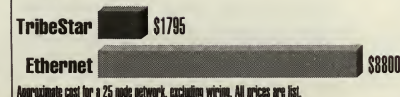
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* MacUser, June 1993, pg. 140

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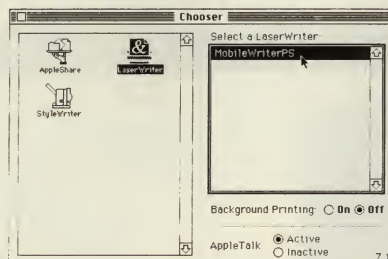


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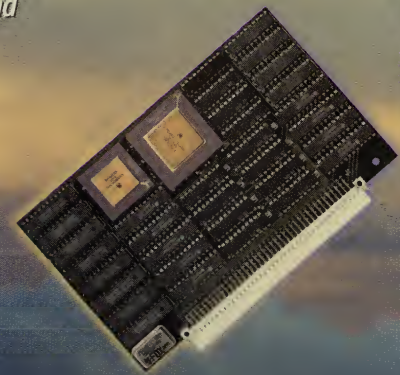
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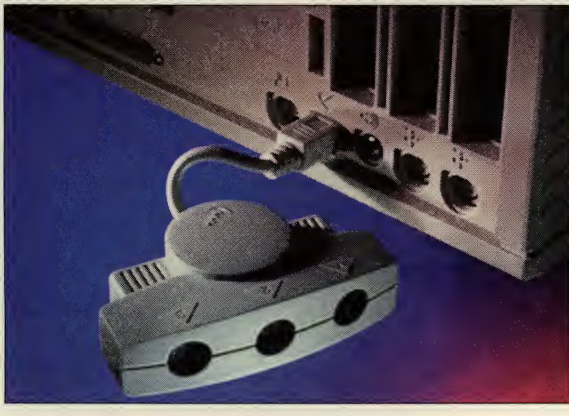
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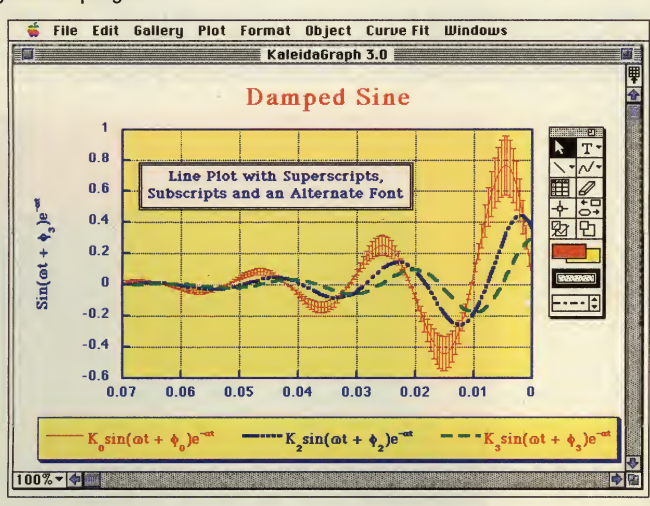
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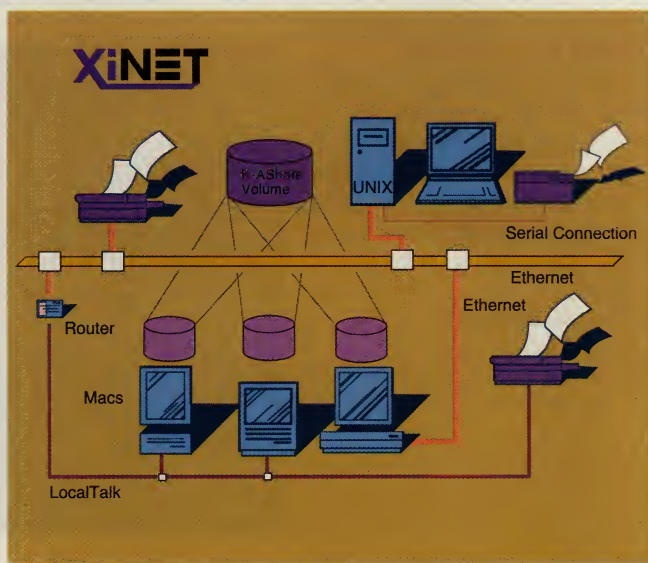


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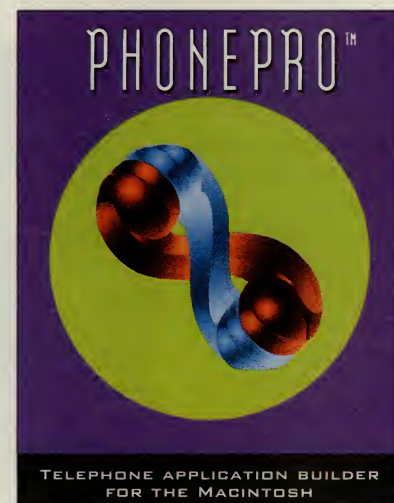
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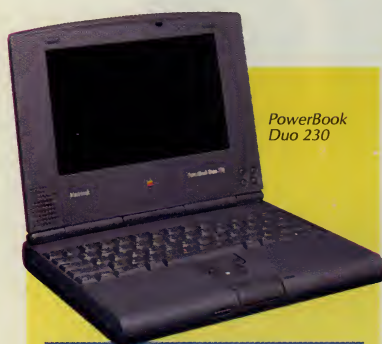
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When you order from us, you get computer experts, not clerks! All of our salespeople are trained in Apple's intensive program, as well as our own. On average, they have three years of Mac experience. They're ready to help you (with a smile!) both before and after the sale.

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Our tech team is well trained, well informed, and well known for their ability to solve customers' problems with a minimum of inconvenience to the customer. We have the best tech support team in the business. Call them toll-free at: 1-800-364-MACS. Please have your customer number ready.

GUARANTEE

OUR FAMOUS GUARANTEE: If you don't like it, we'll buy it back. If you're not 100% satisfied, call for your RMA number and return the product within 30 days of the ship date. We'll cheerfully refund your purchase price. Guarantee applies to all hardware except leases, PowerBooks, consumables, and special-order items.

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*All leases are subject to credit approval. All lease payments in our ads are based on the "True Lease" program at 48 months. Prices, lease prices, and rates are subject to change without notice. NOTE: Minimum lease payment is \$50 per month.

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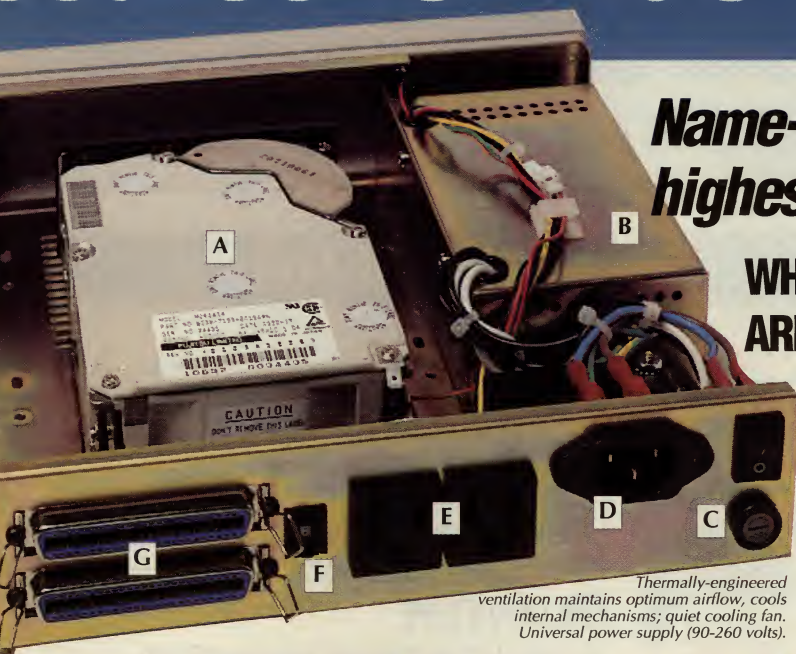
Prices are constantly changing. We'll always give you the best price—just call us for current pricing.

Do you need a fixed hard drive, or the flexibility of an optical? Call us; we can explain your options.

	Model number	Internal price	External price	Formatted Mac capacity (in MB)	Average access time (in ms)	Transfer rate* (in MB/second)	Form factor**	Warranty (years)
80 - 120 MB								
Conner 85	CP-30080E	\$209	\$279	82	17	1.5	LP	1
Quantum 85	ELS85	199	269	82	17	1.4	LP	2
Conner 120	CP-30100	259	329	116	17	1.5	LP	1
Maxtor 120	7120	209	279	121	15	1.5	LP	2
120 - 250 MB								
Quantum 127	ELS127	\$229	\$299	124	17	1.4	LP	2
Conner 170	CP-30170E	259	329	160	9	1.5	LP	1
Quantum 170	ELS170	259	329	160	17	1.4	LP	2
Conner 212	CP-30200	359	429	206	12	2.5 ¹	LP	1
Maxtor 213	7213	299	369	207	15	2.8 ¹	LP	2
Quantum 240	LPS240	339	409	234	10	1.4	LP	2
Maxtor 245	7245	329	399	245.6	15	3.0 ¹	LP	2
320 - 570 MB								
Maxtor 340	LXT-340	\$599	\$669	324	15	2.1 ¹	HH	2
Fujitsu 520	M2624FA	799	869	496	9	2.7 ¹	HH	5
Quantum 525	LPS525	899	969	525	10	2.9 ¹	LP	2
Maxtor 540	MXT-540	919	989	546	9	5.5 ²	HH	2
Conner 540	CP-3540	899	969	515	12	5.5 ²	HH	1
Micropolis 560	M2105	1049	1119	532	10	5.0 ²	HH	5
700 MB - 1.3 GB								
Quantum 700	PRO700	\$1199	\$1269	670	10	2.9 ¹	HH	2
Micropolis 800	M2108	1199	1269	698	10	5.0 ²	HH	5
Toshiba 877	MK-438FB	1099	1169	830	12.5	3.0 ¹	HH	2
Quantum 1050	PRO1050	1239	1309	1000	10	2.9 ¹	HH	2
HP 1050	97558	1649	1749	987	13.5	2.8 ¹	FH	5
Fujitsu 1.2	M2266	1249	1349	1079	14.5	3.0 ¹	FH	5
HP 1.2	C2247	1589	1659	1000	10.5	5.3 ¹	HH	5
Micropolis 1.2	M2112	1249	1319	1005	10	5.0 ²	HH	5
Quantum 1.2	PRO1225	1419	1489	1200	10	2.9 ¹	HH	2
Toshiba 1.2	MK-538FB	1399	1469	1200	12.5	4.0 ¹	HH	3
Maxtor 1.2	MXT-1240	1399	1469	1240	9	4.5 ²	HH	3
Conner 1.3	CP-31370	2059	2129	1030	10.5	6.0 ¹	HH	1
1.5 - 3.6 GB								
Fujitsu 2.0	M2652	\$2199	\$2299	1752	11	4.8 ²	FH	5
Seagate 2.1	ST42100N	1699	1799	1900	12.9	3.9 ²	FH	5
Fujitsu 2.4	M2654	2399	2499	2000	11	4.8 ²	FH	5
Micropolis 2.4	M1924	2599	2699	2100	10	4.8 ²	FH	5
Seagate 2.4	ST42400N	2549	2649	2050	11	4.5 ²	FH	5
HP 2.4	C3010	2899	2999	2000	11.5	5.3 ²	FH	5
Seagate 3.4	ST43400N	3399	3499	2750	11	6.0 ²	FH	5
Micropolis 3.6	M1936	3299	3399	3022	10	6.0 ²	FH	5

* Transfer rate (or throughput) depends on your Mac CPU and system configuration. For more information, ask your Hardware That Fits sales partner. ** Form Factor Low Profile (LP)=3.5 Half Height (HH)=3.5 Full Height (FH)=5.25

¹ SCSI-2 ² SCSI-2 Fast These drives are most efficient when used with a Macintosh Quadra 800, 950 or a RealTech SCSI-2 card.



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33 MHZ Powercache	\$375	\$465
40 MHZ Powercache	\$545	\$635
50 MHZ Powercache	\$714	\$845
Powercache Adapter		\$40
Fast Cache Quadra 700, 900		\$249
Fast Cache Quadra (all)		\$375
33 MHZ Turbo 040		\$1345
Fast Cache Turbo 33-128k		\$179
Charger for Photoshop		\$799

SyQuest

Unformatted Capacity	Access Time	Price
Includes one free cartridge (2 year Warranty)		
44 mb External	19 ms	\$378
88C mb External	19 ms	\$568
105 mb External	14.5 ms	\$728



CD ROMS



Airbourne's Texel

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265ms, Multisession, DualSpeed, SCSI-II

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200ms, Multisession, DualSpeed, SCSI-II

\$498

NEC Intersect Ext Drive

625ms, Model CDR 25, Single Session, Single Speed, SCSI-I

\$169

Note: Bundles are only for sale with purchase of an Airbourne CD-ROM Drive

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- World Atlas • CIA World Fact Book

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Entertainment & Games Bundle

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Clip Media & Fonts Bundle

- Font Fun House • Font Pro Vol. 1/The Essentials
- Publish It! 2.0 with Clip Art Fonts • Color it!

69.00

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PROMETHEUS

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ext 14.4/14.4SR Fax w/ V.42 bis & voice **\$398**

Promodem 144i Internal for Powerbook
14.4/14.4SR Fax w/ V.42 & V.42 bis **\$268**

Promodem 144e
ext 14.4/14.4 SR Fax w/ V.42 & V.42 bis **\$258**

Promodem 24e ext 24/96SR Fax w/ V.42 & V.42 bis **\$128**

Promodem Mini 2400 2400 BPS mini, data only **\$79**

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All units come with Microphone LT & STF FAX Software Price

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96/48 SR Fax w/2400 BPS Modem **\$99**

Faxmodem PKT Portable
96/48 SR Fax w/2400 BPS Modem **\$109**

Faxmodem FXV
V42 bis/MNP5/2400 BPS, 96/96 SR Fax **\$129**

Faxmodem VFX V.32
V.32 bis, 14.4 data & fax, V.42 bis/MNP5 **\$258**

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UC840 - Color w/free Photoshop v2.5 **\$1248**

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Auto Document feeder **\$398**

UG630 - Greyscale w/free Typereader
OCR, OFOTO & Publish It **\$848**

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128 mb Epson Optical 29 ms **\$988**

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WangTek 2.1 Gig DAT **\$998** **\$1198**

WangDat 5.0 Gig DAT **\$1298** **\$1498**

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Memory for LCIII, Centris 610, 650

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170 mb LPS 12 ms **\$248** **\$298**

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525 mb 10 ms **\$799** **\$869**

Prodrive Series (3.5" Half Height Drives)

1.0 Gig 10 ms **\$1148** **\$1228**

1.2 Gig 10 ms **\$1298** **\$1348**

GO•Drive 2.5" Hard Drive (All Quantums - 2 year Warranty)

160 mb 17 ms **\$499** **\$599**

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3.5" 830 mb 12 ms **\$1029** **\$1089**

3.5" 1.2 Gig 12 ms **\$1198** **\$1248**

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3.5" 105 mb 9 ms **\$178** **\$228**

3.5" 520 mb 9 ms **\$748** **\$848**

3.5" 1.1 Gig 8.5 ms **\$1178** **\$1278**

5.25" 1.2 Gig 11.5 ms **\$1148** **\$1238**

5.25" 2.06 Gig 11.5 ms **\$2098** **\$2198**

5.25" 2.4 Gig 11.5 ms **\$2298** **\$2378**

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3.5" Half Height Drives (1 and 5 year Warranties)

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Wren and Elite Series (5.25" Full Height Drives)

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Wren 9 2.1 Gig 12.5 ms **\$1698** **\$1788**

Elite 1 1.6 Gig 11.5 ms **\$1798** **\$1888**

Elite 2 2.4 Gig 11 ms **\$2398** **\$2488**

Elite 3 3.4 Gig 11 ms **\$2998** **\$3048**

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Model QTY 1 5PK 10PK Model QTY 1 5PK 10PK

SyQ44 cart \$65 \$63 \$61 128mb OPT \$37 \$35 \$33

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The APS Go-80 was MacUser Magazine's February 1993, Bottom Line Pick for 80MB internal drives for the PowerBook. The APS Companion™ 120 was chosen Editor's Choice of external drive products for your PowerBook in March 1993, MacWorld. Inside or outside of your PowerBook, APS PowerBook drives, are the best storage options for your PowerBook, and the

editors agree. Not only do APS PowerBook drives deliver better performance than the drives that came inside your PowerBook, but they come with APS' legendary service and technical support.

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Model	Internal	External
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APS 120 [†]	329	459 [†]
APS 160GRS [†]	459	589 [†]

[†]Battery-Powered Companion Case for the PowerBook

TOSHIBA

APS T 213 [†]	569	699 [†]
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Toshiba 2224 mechanism

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Model	Internal	External
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QUANTUM

APS Q 85 ELS ² Quantum 85ELS mechanism	\$189	\$259
APS Q 127 ² Quantum 127ELS mechanism	219	289
APS Q 170 ² Quantum 170 ELS mechanism	239	309
APS Q 240 ² Quantum LP240 mechanism	329	399
APS Q 525 ² Quantum Lps525 mechanism	799	869
APS Q 1225 ⁵ Quantum 1225P mechanism	1249	1319

TOSHIBA

APS T 1.2G ³ Toshiba MK-538 mechanism	999	1069
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¹⁻⁵ Denotes length of manufacturer's warranty

Model	Internal	External
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MAXTOR

APS MX 245 ² Maxtor 7245 mechanism	339	409
APS MX 345 ² Maxtor 7345 mechanism	499	569
APS MX 540 ² Maxtor MXT540 mechanism	899	969
APS MX 1240 ³ Maxtor MXT1240S mechanism	1499	1569

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Model	Internal	External
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APS MS 560 ⁵ Micropolis 2105 mechanism	\$899	\$969
APS MS 1.2G ⁵ Micropolis 2112 mechanism	1299	1369
APS MS 2.4G ⁵ Micropolis 1924 mechanism	2599	2699
APS MS 3.0G ⁵ Micropolis 1936 mechanism	2999	3099



FUJITSU

APS F 520 ⁵ Fujitsu M2624S mechanism	759	829
APS F 1.2G 5.25" ⁵ Fujitsu M2266 mechanism	1249	1349
APS F 1.2G 3.5" ⁵ Fujitsu M2694 mechanism	1199	1269
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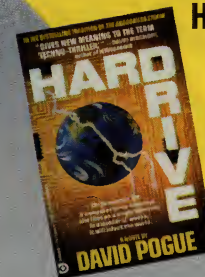
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Model	Internal*	External
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Mechanism is Epson Magneto-Optical OMD-5010		
128MB Magneto Optical Drive * Internal models for Quadra 900 and 950		



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APS SCSI Boy

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- Refused orders subject to restocking fee.
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APS SQ3105	105MB	749

CD ROM

Model	External	Special*
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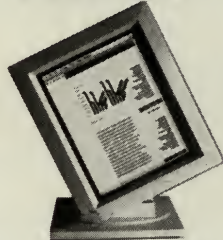
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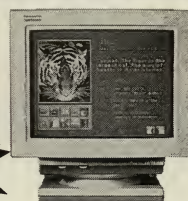
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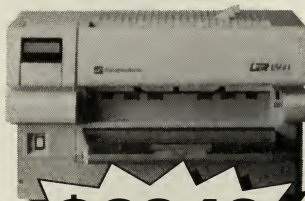
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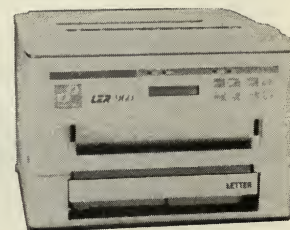
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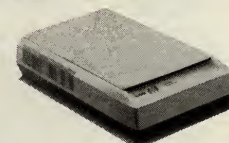
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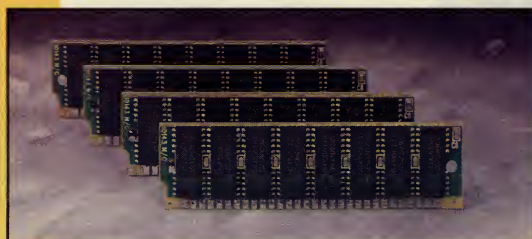
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Our high capacity Spin Drives come with speed-demon-esque mechanisms from DEC, Seagate and Fujitsu. Check the chart at the right for blazing access times, and throughput rates. Available in Internal, Zero Footprint and Compact enclosures. (Compact pictured)

Spin/DEC DSP 3105 1 GB Drive (internal)	\$1249.00
Spin/Seagate ST-11200N 1 GB Drive (internal)	\$999.00
Spin/Fujitsu M2694 FA 1 GB Drive (internal)	\$1399.00

NEW!

SPIN SYQUEST DRIVES



The latest in removable technology: It's small. But big. Small due to its Lilliputian footprint. Big because it accepts 3.5 inch media holding 105 Megs. Also the SyQuest 44/88 accepts both 44 MB and 88 MB media.

The Spin 3.5-inch SyQuest Drive w/cart.	\$699.00
SyQuest 5110C 44/88 SyQuest Drive w/cart.	\$559.00
SyQuest 88 MB Removable w/cart.	\$479.00
SyQuest 44 MB Removable w/cart.	\$379.00

SPIN TOSHIBA XM 3401 CD ROM DRIVE



The Toshiba mechanism in this drive is double speed – in a word, whoosh, making the Spin CD ROM perfect for Photo CDs and MultiSession applications.

Toshiba Double Speed CD ROM Drive	\$549.00
The Double Spin CDR 84 CD ROM Drive	\$449.00

SPIN 3.5 OPTICAL DRIVE



Small footprint. Small pricetag: under \$1000. It accepts ISO standard 128 MB capacity 3.5-inch cartridges compatible with other machines. Exclusive 2-yr warranty.

The Spin 3.5 Optical Drive w/cart.	\$999.00
------------------------------------	-----------------

GO FOR A SPIN WITHOUT BEING TAKEN FOR A RIDE.

MORE THAN JUST A LOW PRICE.

Flip through these pages (not right now, it's just a figure of speech), and you'll see a lot of low prices. The difference with Spin is that you get more. And not just a little more. We include many free things that others charge you for. Like a double-shielded SCSI cable. External terminator. A power supply designed for constant use. Not to mention our own Spin Disk Utilities with free upgrades for a year, system software, and unlimited tech support as long as you own a Spin drive. We aim to please. Call one of the other guys and ask what they'll give you for free. The cardboard box? The owner's manual? Then call us back.

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If you're not satisfied, neither are we (we're referring, of course, to Macintosh peripherals only). That's why every Spin product comes with a 30-day money back guarantee. Test-drive any Spin product. Give it a real workout. If you're not happy, return it within 30 days for a refund.

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THE LOWEST MEDIA PRICES ANYWHERE



SyQuest unformatted 44 MB	\$61.00
SyQuest unformatted 88 MB	\$99.00
SyQuest formatted 44 MB	\$69.00
SyQuest formatted 88 MB	\$105.00
SyQuest 105 MB 3.5-inch cartridge	\$71.00
Optical 3.5-inch cartridge	\$35.00
DAT 90 meter (4mm) Tape Cassette	\$17.00

SPIN DAT DRIVES



If it's your job to archive a ton of files, choose one of our Spin DATs. Standard DAT holds 2 GB. Compression model, up to 8 GB. Includes DANTZ Retrospect®, version 2.0

Spin Standard DAT	\$1199.00
Spin Compression DAT	\$1349.00

ZERO FOOTPRINT DRIVES



There's a Spin Zero Footprint drive for every application. They include everything you need to get up and running. Check this chart for specs and prices.

Capacity (MB)	Model Number	Av. Acc. Time (msec)	Transfer rate (K/sec)	MFG warranty. (mos)	Int. Drive Price	Zero FP Drive Price	Compact Drive Price
Conner							
85	CP-30080E	16	1300	24	\$199	\$259	
120	CP-30100	16	1300	24	\$259	\$309	
170	CP-30170E	16	1400	24	\$269	\$329	
213	CP-30200	15	2000	24	\$349	\$399	
Quantum							
85	ELS 85S	17	1800	24	\$179	\$249	
127	ELS 127S	17	1800	24	\$199	\$279	
170	ELS 170S	17	2000	24	\$219	\$299	
240	LPS 240	16	2300	24	\$299	\$389	
120 (Pwrbk)	GO 120	17	1900	12	\$299		
Digital							
1.05GB	DSP-3105	9.5	2600	60	\$1,249	\$1,299	\$1,349
Seagate							
1.05GB	ST-11200N	10.5	3200	60	\$999	\$1,049	\$1,099
Fujitsu							
520MB	M2624ESA	9	2700	60	\$799	\$859	\$899
1.06GB	M2694FA	9	2800	60	\$1,399	\$1,449	\$1,499
Toshiba							
210 (pwrbk)	MK-224	12	1800	12	\$499		

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1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

Quantum



GO•DRIVE SERIES 2.5" POWERBOOK DRIVES

Unformatted Capacity	Access	Internal	External
80mb	17ms	\$275	\$375
120mb	17ms	\$299	\$399

GO•Drives have a ONE Year Warranty. ELS, LPS, PRO drives have a TWO Year Warranty.

LPS SERIES 3.5" LOW PROFILE DRIVES

Unformatted Capacity	Access	Internal	External
120mb	10ms	\$259	\$319
240mb	10ms	\$315	\$375
525mb	10ms	\$779	\$839

ELS SERIES 3.5" LOW PROFILE, LOW POWER

Unformatted Capacity	Access	Internal	External
42mb	19ms	\$169	\$229
85mb	17ms	\$185	\$245
127mb	17ms	\$209	\$269
170mb	17ms	\$229	\$289

PRODRIVE SERIES 3.5" HALF HEIGHT

Unformatted Capacity	Access	Internal	External
425mb	9ms	\$685	\$745
700mb	10ms	\$949	\$1009
1.0GIG	10ms	\$1055	\$1115
1.2GIG	10ms	\$1199	\$1259



FEATURING

SyQuest®
REMOVABLE TECHNOLOGY

All SyQuest drives include a TWO Year Warranty, ONE cartridge, SCSI Director formatting software, and necessary cables for "plug-and-play". All SyQuest Cartridges include a ONE Year Warranty.

3.5" 105MB REMOVABLES

ClubMac 105mb External (SQ3105A)	\$689
ClubMac 105mb Internal (Quadra 900/950 only)	\$659

88C REMOVABLES*

ClubMac 88c External (SQ5110C)	\$549
ClubMac 88c Internal	\$525
ClubMac 88c Dual	\$999

* ClubMac 88c will read and write 44mb cartridges, but will not format 44mb cartridges.

44MB REMOVABLES

ClubMac 44mb External (SQ555)	\$378
ClubMac 44mb Internal	\$348
ClubMac 44mb Dual	\$665

88MB REMOVABLES

ClubMac 88mb External (SQ5110)	\$479
ClubMac 88mb Internal	\$449
ClubMac 88mb Dual	\$845

SYQUEST CARTRIDGES

44mb / 88mb / 105mb\$62.50 / 96.50 / 79

Maxtor



MAXTOR
MXT-540
AND
MXT-1240
OPERATE AT A
BLAZING
6300 RPM!!

**TWO
YEAR
WARRANTY**

Unformatted Capacity	Model	Access Time	Actual MAC Capacity	Internal	External
XT SERIES & MXT SERIES (3.5" LOW PROFILE)					
120mb	7120S	15ms	121mb	\$199	\$259
212mb	7213S	15ms	202mb	\$275	\$335
240mb	7245S	15ms	235mb	\$309	\$369
540mb	MXT-540	8.5ms	521mb	\$859	\$919
LXT & MXT SERIES (3.5" HALF HEIGHT)					
340mb	LXT-340	15ms	324mb	\$499	\$559
1240mb	MXT-1240	8.5ms	1150mb	\$1329	\$1389

Seagate



Unformatted Capacity	Model	Access Time	Actual MAC Capacity	Internal	External
3.5" HALF HEIGHT					
1.2GIG	ST11200N	10.5ms	1000mb	\$1125	\$1185
2.4GIG	ST12400N	9ms	2000mb	\$2195	\$2255
2.4GIG	ST12550N Barracuda	8ms	2050mb	\$2499	\$2559
5.25" FULL HEIGHT					
1.6GIG	ST41651N	Wren-8	1350mb	\$1349	\$1449
2.1GIG	ST42100N	Wren-9	1900mb	\$1725	\$1825
1.6GIG	ST41600N	Elite-1	1307mb	\$1799	\$1899
2.4GIG	ST42400N	Elite-2	2050mb	\$2329	\$2429
3.4GIG	ST43400N	Elite-3	2750mb	\$2949	\$3049

Seagate drives carry a ONE Year Warranty.

CLUBMAC TAPE BACKUP SYSTEMS

Capacity	Model	Description	Media	Internal	External
155mb	Teac MT2ST/N50	Analog	CT600N	\$429	\$449
600mb	Teac MT2ST/F50	Analog	CT600F	\$629	\$649
2.0GIG	Archive Python	DAT, DDS	4mm	\$979	\$999
3-5GIG	Archive Turbo DAT	DAT, DDS-DC	4mm	\$1319	\$1339
2.0GIG	WangDAT 3100	DAT, DDS	4mm	\$1045	\$1065
3-5GIG	WangDAT 3200	DAT, DDS-DC	4mm	\$1275	\$1295
2.0GIG	HP 35470A	DAT, DDS	4mm	\$1179	\$1199
3-5GIG	HP 35480A	DAT, DDS-DC	4mm	\$1299	\$1319
2-5GIG	Exabyte 8205	Helical/Compression	8mm	\$1675	\$1695
5-10GIG	Exabyte 8505	Helical/Compression	8mm	\$2629	\$2649

Includes RetroSpect v.2.0 Backup Software, One Tape and ONE Year Warranty

CLUBMAC OPTICAL DRIVES

Model		Capacity	Description	Seek	Internal	External
CMO-5010	Epson	128mb	3.5" Half Height	45ms	\$955	\$985
CMO-M2511A	Fujitsu	128mb	3.5" Low Profile	35ms	\$969	\$999
CMO-OD3000	Teac	128mb	3.5" Half Height	45ms	\$919	\$949
CMO-3100E	Ricoh	128mb	3.5" Half Height	45ms	\$965	\$995
CMO-JY750	Sharp	594/652mb	5.25" Half Height	40ms	\$2019	\$2049
CMO-5031E	Ricoh	594/652mb	5.25" Full Height	28ms		\$2295
CMO-Tahiti II	MaxOptix	650mb/1.0GIG	5.25" Full Height	35ms		\$2999
128mb / 600mb / MaxOptix Cartridge						\$39 / 99 / 175

All ClubMac Opticals include ONE cartridge and ONE Year Warranty.

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Call for best price **\$SAVE**

MONITORS

SuperMac:

SuperMatch 21" **\$2,405⁰⁰**
SuperMatch 17" **\$1,029⁰⁰**
SuperMatch 17" T **\$1,099⁰⁰**
Platinum 21" **\$1,029⁰⁰**

Other SuperMac models available.

Samsung 14" Monitor **\$349⁰⁰**
Samsung 15" Monitor **\$479⁰⁰**
Samsung 17" Monitor .31 dot pitch **\$639⁰⁰**
Samsung 17" Monitor .26 dot pitch **\$949⁰⁰**

NETWORKING

MacNet:

SE/30 and IIsi 3 in 1 Combo Card* **\$130⁰⁰**
SCSI 3 in 1 with Cable* **\$SAVE**
SCSI 3 in 1 PowerBook Cable* **\$SAVE**

*Above cards have 64Kb of static RAM

IEEE compatible, thick, thin, or 10 baseT

LC 10Base2/T Card. **\$130⁰⁰**

Repeaters and concentrators are available.

UPS SYSTEMS

APC UPS 110SE **\$229⁰⁰**
APC UPS 370ci **\$359⁰⁰**
Other models available.

OPTICAL DRIVES

Mass Micro 128Mb **\$1,259⁰⁰**
Mass Micro 650Mb **\$3,099⁰⁰**

Cartridges available.

REMOVABLE DRIVES

Mass Micro DataPac 88 R/W* **\$619⁰⁰**

Cartridges available. (*reads and writes 44 or 88Mb cartridges)

MODEMS

Practical Peripherals:

96/96 Fax Modem **\$205⁰⁰**
14,4/14,4 Pocket Fax Modem **\$376⁰⁰**

Prometheus:

Home Office Voice Modem **\$180⁰⁰**
Ultra Home Office Voice Modem **\$369⁰⁰**

PRINTER UPGRADES

Samsung Image 1200 Kit
Upgrades Finalé 8000 to 1200 DPI **\$899⁰⁰**

VIDEO CARDS

SuperMac:

Thunderstorm for Photoshop **\$629⁰⁰**
Thunder24 **\$2,159⁰⁰**
Spectrum 8-24 PDQ Nubus or IIsi **\$789⁰⁰**
Spectrum 8 Series III Nubus **\$399⁰⁰**
Spectrum 24 Series IV **\$829⁰⁰**
Monochrome Card **\$349⁰⁰**

Other models and products available.



**SUPERMAC
MONITORS/CARDS**
SuperMatch 20 Plus
Spectrum/24 Series IV.
\$2,298⁰⁰



TOSHIBA 3401 CD-ROM
200 ms, 330Kb Transfer rate,
Fastest CD-ROM.
\$559⁰⁰



**MACNET NUBUS
NETWORK CARD**
3 in 1 combo card,
Novell compatible,
Up to 10Mbps.
\$130⁰⁰



**SAMSUNG FINALÉ 8000
LASER PRINTER**
8-pages/min., 300 DPI, Fast
RISC Processor upgradable to
1200 DPI.
\$1,219⁰⁰



OCEAN OPTICAL DRIVE
256 Mb Optical Drive, with
Cartridge, 35ms seek time.
\$1,645⁰⁰



PRACTICAL PERIPHERALS
14,400/14,400 Send/Receive
Fax Modem.
\$225⁰⁰



E-MACHINE
Powerlink Desknet Dou's.
Other models available.
\$622⁰⁰



PROMETHEUS PB MODEM
14.4 Modem, 9600 Fax.
Priced to move.
\$289⁰⁰



SEAGATE HARD DRIVES
1.2Gb Internal Hard Drive.
Other models available.
\$1,049⁰⁰



MASS MICROSYSTEMS
DataPak 105E, 14.5ms access time.
Lifetime warranty on cartridge.
\$825⁰⁰

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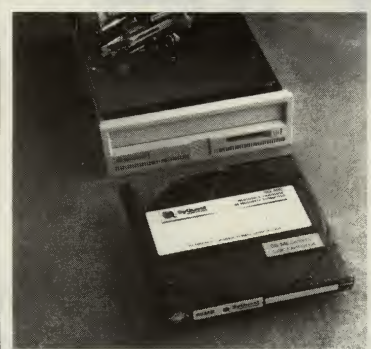
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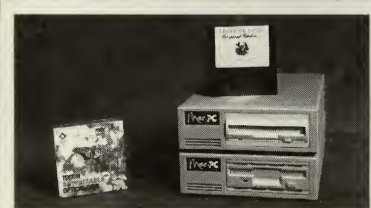


SyQuest

External 44mb (One Cartridge inc.)	379
External 88mb (One Cartridge inc.)	479
External 88mb C* (One Cartridge inc.)	549
External 105mb (One Cartridge inc.)	689
44mb Cartridge/10 pack	62.50/610
88mb Cartridge/5 pack	96.50/475
105mb Cartridge/5 pack	71/350

All SyQuest Drives come with FWT™ HDT Formatting Software.
 SyQuest carries a TWO year Warranty on Drives and ONE year on Cartridges. *READS AND WRITES 44 AND 88 CARTRIDGES. Does not format 44 cartridges. Dual kits available.

MAGNETO-OPTICAL



RICOH

128mb, 3.5"HH, 45ms	949
650mb, 5.25"FH, 28ms	2249
128mb/650mb Cartridge (Verbatim)	35/95

Teac

128mb, 45ms, 3.5"HH	899
128mb cartridges (Verbatim)	35

Fujitsu

128mb, 30ms, 3.5"TH	999
128mb cartridges (Verbatim)	35

Sharp

650mb, 40ms, 3.5"HH	2049
650mb Cartridge (Verbatim)	95

TAPE BACK-UP

Archive

2.0gb Standard	989
4.0gb - 8.0gb Compression Turbo	1339
90m / 60m Tape	16/13

Teac

150mb Tape Backup Drive	469
600mb Tape Backup Drive	669
600mb / 150mb Tape Cassette	27/18

All tape backup drives come bundled with FREE Retrospect V.2.0, one tape and have a one year warranty.

CD-ROM DRIVES

Toshiba

600mb, 200ms, 3.5"HH	539
----------------------	-----

CD-ROMs are Dual-Speed & Kodak Photo-CD/Multi-session compatible. Bundled with FWT™ CD-ROM Tool Kit. Toshiba carries a ONE year Warranty.

NEC

CDR-38 Portable	499
CDR-84 Internal	599
CDR-74 External	619

HARD DRIVES



Quantum

Formatted Capacity	Speed	Size	Internal	External
ELS 42mb	19ms	3.5"TH	169	229
ELS 85mb	17ms	3.5"TH	185	245
ELS 127mb	17ms	3.5"TH	209	269
ELS 170mb	17ms	3.5"TH	229	289
LPS 240mb	10ms	3.5"TH	309	369
LPS 525mb	10ms	3.5"TH	739	799
Pro 700mb	10ms	3.5"HH	939	999
Pro 1.05gb	10ms	3.5"HH	1099	1159
Pro 1.22gb	10ms	3.5"HH	1199	1259
GRS-80mb	17ms	2.5"PB	279	379
GO-120mb	17ms	2.5"PB	299	399
GRS-160mb	17ms	2.5"PB	449	549

TWO year Warranty. ONE year Warranty on GO drives. FWT™ HDT Formatting Software Included.

Toshiba

Formatted Capacity	Speed	Size	Internal	External
877mb	12.5ms	3.5"HH	979	1039
1.23gb	12.5ms	3.5"HH	1089	1149
213mb	12ms	2.5"PB	539	639

Toshiba carries a THREE year Warranty. FWT™ HDT Formatting Software Included.

Fujitsu

513mb	9ms	3.5"HH	739	799
1.0gb	9ms	3.5"HH	1199	1259
1.65gb	15ms	5.25"FH	2099	2199
2.05gb	12ms	5.25"FH	2239	2339

FIVE year Warranty. FWT™ HDT Formatting Software Included.

Conner

82mb	17ms	3.5"TH	185	245
160mb	13ms	3.5"TH	239	299
206mb	12ms	3.5"TH	299	359
515mb	10ms	3.5"HH	799	859

TWO year Warranty. FWT™ HDT Formatting Software Included.

Maxtor

120mb	15ms	3.5"TH	199	259
203mb	15ms	3.5"TH	279	339
235mb	15ms	3.5"TH	299	359
520mb	9ms	3.5"HH	899	959
1.15gb	9ms	3.5"HH	1239	1299
1.0gb	13ms	5.25"FH	1099	1199
1.43gb	13ms	5.25"FH	1399	1499

TWO year Warranty. FWT™ HDT Formatting Software Included.

MAC SIMMS

1x8/2x8/4x8/16x8 @ 80ns	CALL
Quadra 700/950: 4x8/16x8	CALL
Powerbook 140/170: 4mb/6mb	CALL
Powerbook 160/180: 4mb/6mb/8mb/10mb	CALL
Duo 210/230: 4mb/6mb/8mb/10mb	CALL
Centris & LCII: 4x8/8x8/16x8 @ 70ns	CALL
Quadra 800: 4x8/8x8/16x8 @ 60ns	CALL

PLEASE BE AWARE THAT SIMM PRICES ARE CHANGING ON A DAILY BASIS.

PRINTERS

Hewlett Packard

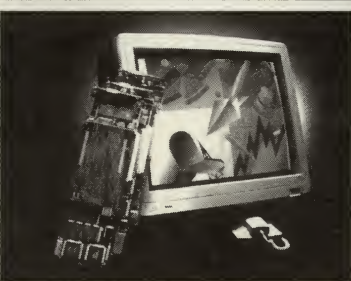
Deskwriter	399
Deskwriter 550-C	769
LaserJet 4M	1999

NEC

SilentWriter 95F Printer	1289
SilentWriter 95FX Printer	1529
SilentWriter 97F Printer	1569
SilentWriter 97FX Printer	1809
ColorMate PS-40 Color Printer	3399
2mb upgrade for printers	95

Get a \$250 rebate from NEC with the purchase of any printer. Offer ends 6/30/93.

VIDEO



SuperMac

ThunderStorm Pro	2799
ThunderLight	1745
Spectrum/24 Series IV	829
Thunder 8	1139
Spectrum/8.24 PDQ	789
Spectrum/8.24	613
Spectrum/8 LC-SI/NUBUS	425/355
SuperMatch 21" TPD Color	2444
SuperMatch 20" DM Trinitron	2485
SuperMatch 20" Color	1525
SuperMatch 17" MM Color	1049
SuperMatch 17" T Trinitron	1089
Platinum 21" TPD	1049
Platinum 20" TPD	871
Spigot & Sound/Pro	504/1139

Radius

Color Display/21	2339
IntelliColor Display/20	2639
PrecisionColor 19	2059
PrecisionColor Pivot	949
PrecisionColor 24X Interface	1529
PrecisionColor 24XK Interface	829
PrecisionColor 24XP Interface	489
PrecisionColor 8XJ Interface	489
Pivot Display/15	599
Full Page Display	479
Two Page Display/19	689
Two Page Display/21	859
Two Page Display/21E	1119
VideoVision (Basic)	1649
VideoVision (Presentation)*	1979
Rockets 25i	979
Rockets 33	1449
RocketShare/SCSI-2 Booster	415/244

* Includes Premier 2.0 and Action!

NEC

MultiSync 3FGe - 15" Monitor	635
MultiSync 4FGe - 15" Monitor	745
MultiSync 5FGe - 17" Monitor	1145
MultiSync 5FG - 17" Monitor	1345
MultiSync 6FG - 21" Monitor	2445
FG8x 8-bit board	645
FG24x 24-bit board	1205
FG24xp 24-bit board	505

Get a \$100 rebate from NEC with the purchase of a MacFG 24XP card with either a 15" or 17" MultiSync FG monitor. Offer ends 6/30/93.

RasterOps

21" Mono/Gray-Scale Monitor	999
21" Color Hitachi	2319
20" Color Trinitron MultiScan RO	2349
20" Color Hitachi MultiScan	1339
24 STV Interface	769
24 SX Interface	619
24 XLI Interface	1929
Paintboard LI	829

Sony

1430 - 14" Color Trinitron	669
1320LC - 14" Color Trinitron for LC	429
1730 - 16" Color Trinitron NEW!	1089

Includes MAC Adaptor. Quadra compatible.

NETWORK

Asanté

MC3NB - Thick/Thin/10 Base T, 64k	195
MC+IIE64 - Thick/Thin, 64k	145
MC+IIE64 - Thick/10 Base T, 64k	145
MC+LCII - Thin/10 Base T, FPU Socket	195

SCANNERS



Microtek

ScanMaker II	879
ScanMaker IIw/transp. opt.	1439
ScanMaker IIxe	1169
ScanMaker IIxe w/transp. opt.	1689
ScanMaker 35T	1379
Automatic document feeder	465

UMAX

UC - 1200s with Color Access Software	2959
UC - 840 with Adobe PhotoShop™ v2.5 FV	1259
UC - 630 with Adobe PhotoShop™ v2.5 LE	1089
UG - 630 with Typereader OCR	889
Automatic Document Feeder	449
Transparency / Slide Scanner Option	699

Sharp

JX-320 with Adobe PhotoShop™ v2.5 FV	899
JX-450 with Adobe PhotoShop™ v2.5 FV	3899

AGFA

Arcus 1200dpi Scanner	CALL
Arcus Transparency	CALL

MODEMS

PSI

COMstation One	135
COMstation Two	235
COMstation Four	345
COMstation Five	415
PowerModem I	125
PowerModem II	225
PowerModem III	315
PowerModem IV	405

US Robotics

Mac&Fax SPORTSTER Modem 14.4bps, Send/Receive FAX Modem	239
WorldPort FAX	459
Courier v.32 bis (Data only)*	399
Courier v.32 w/FAX*	419

*Includes cable.

ACCELERATORS

DayStar

Turbo 040 25 MHz /33MHz/40MHz	1099/1359/2039
FastCache Turbo 25, 33 & 40MHz - 128k cache for Turbo 040	169
FastCache Quadra (700, 800, 900 & 950) - 128K	379

PowerCache 33MHz OR w/ FPU	375/459
PowerCache 40MHz OR w/ FPU	545/629
PowerCache 50MHz OR w/ FPU	709/829
PowerCache Adapters*	41

* Additional on all PowerCache cards except for Ili

Applied Engineering

TransWarp LC - 25MHz or w/FPU	319/419
TransWarp LC - 33MHz or w/FPU	409/419
TransWarp LC - 40MHz or w/FPU	409/539
TransWarp SE - 25MHz or w/FPU and 40MHz or w/FPU	185/309/259/389
TransWarp Classic - 25MHz or w/FPU and 40MHz or w/FPU	185/309/259/389



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PowerBook 180C	Apple DuoDock

CPU Accessories

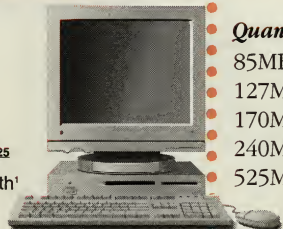
ETC PowerGlide Extended Keyboard	\$99
ETC PowerBook ADB Keypad	\$75

Business

Centris 610 4/80

ETC PowerGlide
Extended Keyboard
Seiko 14" Trinitron
Color Monitor

\$2,331 Lease a month¹ \$86²⁵



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127MB ELS	\$215	\$275
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1050MB	\$1119	\$1179
1225MB LPS	\$1249	\$1309

Maxtor

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340MB	\$635	\$689
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Fujitsu

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Toshiba

877MB	\$1089	\$1155
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MicroLaser Turbo	\$1459
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LaserWriter Pro 630	\$2419

Digital Equipment Corp.

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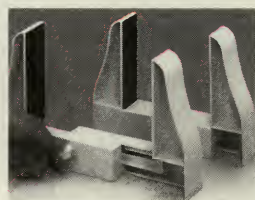
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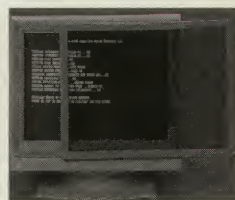
Paper Holder
w/ Metal Arm

&



Adjustable CPU Stand

&



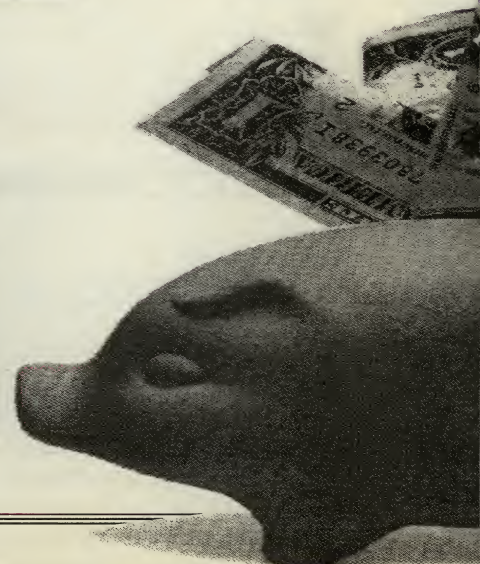
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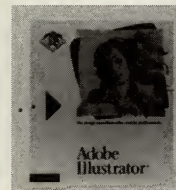
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RD/128 LC	Erasable	35ms	640 Kb/Sec.	128 Mb	\$989
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(Xceed Technology) Xceed Technology announces their new 8-Bit and 24-Bit Color Video Card's. In addition to supporting Apple's 12", 13", 14" & the Portrait monitor, our Color 30 HR and MacroColor 30 HR Video Card's now support the Apple 16" and VGA/SVGA monitors in 640x480, 800x600 and 1024x768. With a PDS adapter your IIs can now benefit from Xceed's fast, high performance color on a variety of external monitors without breaking your pocketbook. All of Xceed's products carry a 5 year registered warranty and free Technical Support. Color 30HR 8-Bit Video Card DR10413 FaxFACTS 4504 \$279 and MacroColor 30 HR 24-Bit Video Card DR10496 FaxFACTS 4961 \$489 (not shown). Also available: Gray-Scale 30 Video Adapter DR10414 \$89.



FileGuard 2.7

(ASD) "It's about as much software-based security as you can get in one package." MacUser, March 1992. FileGuard 2.7 protects your hard drives and partitions from unauthorized access (including security bypass with a system disk), copying and erasure. With it you can protect your applications and files/folders (including the System Folder) from unauthorized access, deletion, and illegal copying. FileGuard protects your Desktop from alterations by unauthorized users, and will even keep an eye on system usage with its System Users Log. Prevent others from viewing the information displayed on your screen with the Screen Locker. For complete confidentiality, protect your files with encryption as you create them. System 7.0 compatible. Rated 5 mice from MacUser. UT10135 FaxFACTS 6806 \$139.



MacEKG

(MicroMat) Is your drive slowly dying out on you? Is that new extension taking more processor power than it deserves? If you use a virus program, you're checking only PART of your machine. MacEKG performs advanced tests to isolate faults and help diagnose intermittent failures. MacEKG makes you aware of small problems before they become major catastrophes. UT10285 FaxFACTS 6603 \$89.

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Drive7 2.3

(Casa Blanca Works) Drive7 2.3 makes hard disk drives from almost any manufacturer System 7 compatible. With a single button click, it installs up-to-date System 7 drivers on SCSI drives, including SyQuest and Optical removable cartridges, even if the drive was formatted with other formatted software. It supports partitioning, Virtual Memory, and Balloon help. Rated 4 mice by MacUser (2/93). UT10273 FaxFACTS 6543 \$49.

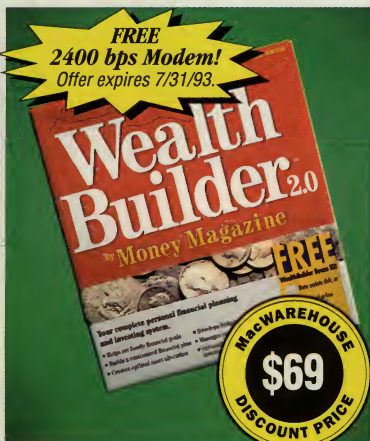
DriveShare

DriveShare 5-User allows you to share many removable drives on your network. It handles SyQuest and Bernoulli cartridge drives, CD-ROM drives, and most optical drives. It works with both System 6 and 7, and on networks having Macs running both. UT10290 FaxFACTS 6588 \$129.



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10141	1225 MB Pro Drive 5yr warranty	1329
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MDS

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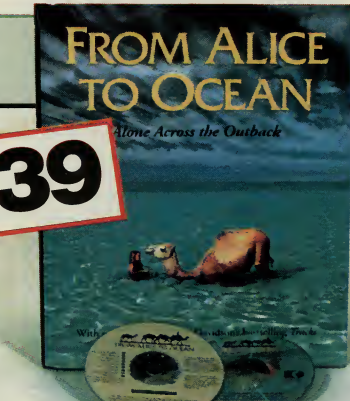
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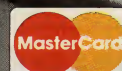
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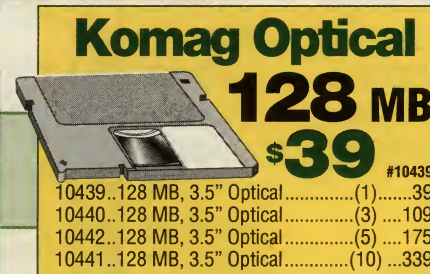
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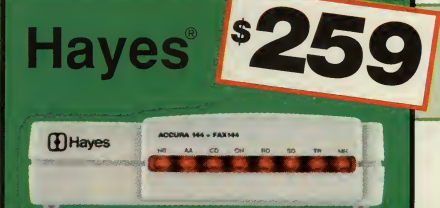
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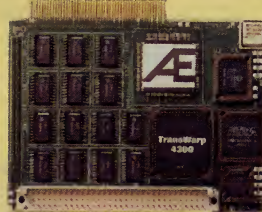
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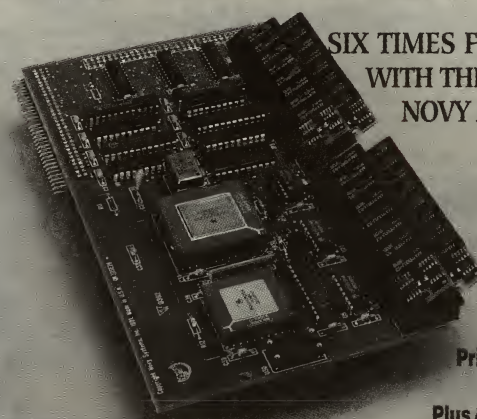
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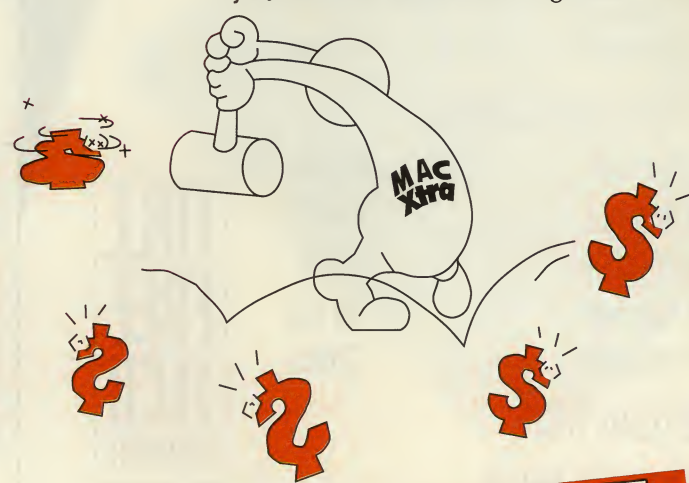
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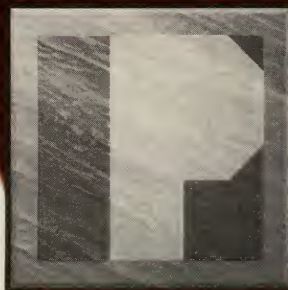
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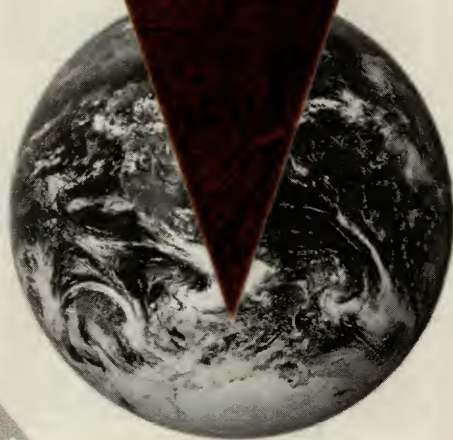
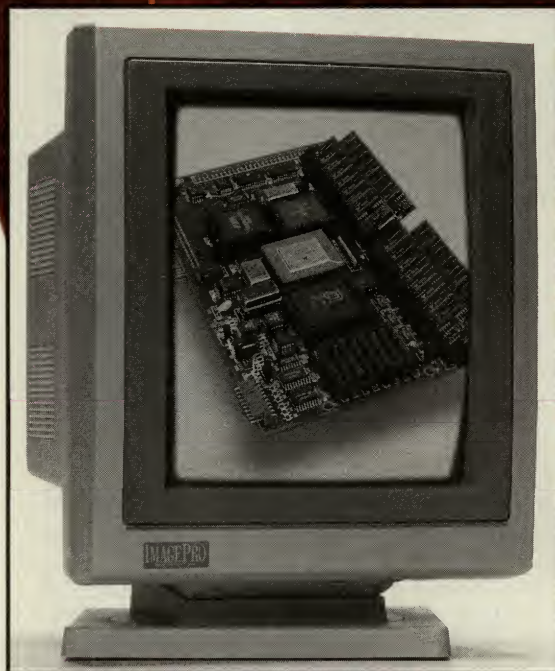
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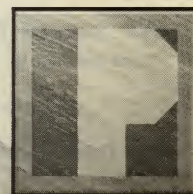
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


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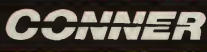
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600 dpi Engine, 8 ppm, RISC Processor, AppleTalk on-board. Scalable typefaces (PostScript and PCL5) generating thousands of fonts. Printer emulations include Hewlett Packard, IBM ProPrinter & Epson. Parallel and serial interface with automatic sensing. 2 MB RAM (expandable to 8MB).

Color:

Océ G5241 1,999

The Océ G5241 puts the power of color PostScript® printing on your desktop using a true Adobe® PostScript interpreter. Using the thermal transfer method, the G5241 prints either 3 or 4 color on letter or A3 size, paper or overhead transparencies at 300 dpi.

Océ G5232 2,999

The Océ G5232 has all the great qualities of the G5241 but increases the printing capability to tabloid size pages at 300 dpi. True PostScript®, 35 Adobe fonts in ROM, downloadable fonts supported. 8MB Ram, 20MB hard drive. (Demo Unit)

Modems



SupraFAX Modem 14,400 299

14,400 bps Modem/14,400 send-receive FAX. v.42bis compression for up to 57,600 bps data.

SupraFAX Modem Plus 2,400 199

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All SupraFAX modems include STB and MicroPhone software, cable and have a 5-year Warranty

U.S. Robotics Sportster 14,400 239

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Quicktel v.32bis 14,400 249

14,400 bps Modem/14,400 send-receive FAX. v.42bis compression for up to 57,600 bps data.

Quicktel 2400/9600 FAX/Modem 139

2,400 bps Modem/9,600 send-receive FAX. v.42bis compression for up to 9,600 bps data. Incl. software.

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20 Inch Color Trinitron!
\$1,599

Monitor Only 1,599

Business Package* 256 Color 1,799

Artist Package* 16 Million Color . 2,449

* Package includes a new 20" Relax Mac compatible Trinitron color monitor, video board, and cable. 72 dpi for WYSIWYG.



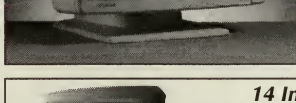
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Monitor Only 799

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Artist Package* 16 Million Color . 1,649

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Monitor Only 359

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Ikegami Monitor Only 799

Mac II, x, fx, cx, ci Package * 999

Mac LC, LCII, SE/30 Package* 1,199

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RasterOps:

Editing Aces 3,499

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MoviePak 1,485

24XLTV Multi Media 2,599

24MxTV Multi Media 1,649

MediaTime Multi M. 1,485

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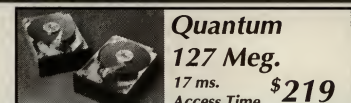
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510 Meg. - ST1581N, 14 ms. 939 999

1.0 Gig. - ST11200N, 14 ms. ... 1,125 1,185

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1.4 Gig. - ST41651N, 15 ms. ... 1,349 1,449

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1.4 Gig. - ELITE-I, 11.5 ms. 1,799 1,899

2.1 Gig. - ELITE-II, 11 ms. 2,355 2,455

3.5 Gig. - ELITE-III, 11 ms. 2,949 3,049

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520 Meg. - 2624FA, 9 ms. 765 825

1.2 Gig. - 2694SA, 8.5 ms. 1,295 1,355

5-1/4" Full Height

1.2 Gig. - 2266SA, 14.5 ms 1,175 1,275

1.7 Gig. - 2652FA, 14.5 ms 2,115 2,215

2.0 Gig. - 2652SA, 11.5 ms 2,245 2,345

Maxtor 3-1/2" Low Profile/Low Power

120 Meg. - 7120S, 15 ms. 199 259

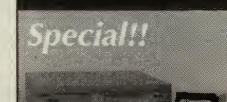
213 Meg. - 7213S, 15 ms. 279 339

5-1/4" Full Height

1.2 Gig. - Panther, 13 ms. 1,049 1,149

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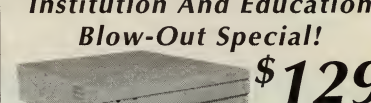
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170 Meg. - CP-30170E, 17 ms. 245 305

212 Meg. - CP-30200, 12 ms. 319 379

545 Meg. - CP-30540, 8.5 ms. 859 919

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42 Meg. - ELS42, 19 ms. 169 229

85 Meg. - ELS85, 17 ms. 189 249

127 Meg. - ELS127, 17 ms. 215 275

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240 Meg. - LPS240, 10 ms. 319 379

525 meg. - LPS525, 10 ms. 779 839

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1.2 Gig. - PD1225S, 11 ms. 1,199 1,259

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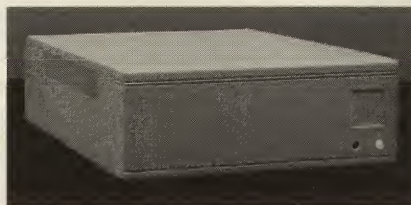
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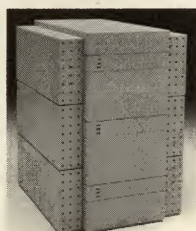
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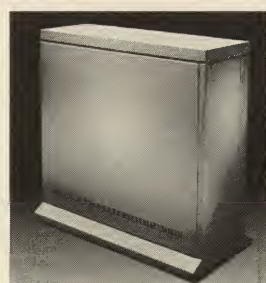
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MAC HARD DRIVES ALL DRIVES ARE LISTED WITH FORMATTED CAPACITIES

MICROPOLIS 5YR WARRANTY

MB	TYPE	SIZE	SEEK	INT	EXT
560	2105	3.5	10	\$ 880	\$ 975
698	2108	3.5	10	\$1020	\$1115
667	1624	HH	15	\$1020	\$1140
1050	2112	3.5	10	\$1070	\$1165
1340	1528	FH	14.5	\$1300	\$1320
1380	1908	FH	11.5	\$1800	\$1920
2100	1924	FH	11.5	\$2290	\$2410
3050	1936	FH	11	\$2980	\$3100

SEAGATE 1YR & 5YR WARRANTY

MB	TYPE	SIZE	SEEK	INT	EXT
245	ST3283N	1"	12	\$ 340	\$ 440
456	ST3550N	1"	12	\$ 875	\$ 915
540	ST3600N	1"	10.5	\$ 855	\$ 955
665	ST4767N	FH	12	\$ 977	\$1125
860*	ST1980N	3.5	9.9	\$ 977	\$1077
1037	ST41200N	FH	16	\$1047	\$1147
1037*	ST11200N	3.5	10.5	\$1047	\$1142
1420	ST41600N	FH	11.5	\$1695	\$1815
1900*	ST42100N	FH	12.9	\$1580	\$1700
2100*	ST42400N	FH	11	\$2217	\$2337
2145	ST12550N	3.5	8	\$2468	\$2563
2900*	ST43400N	FH	11	\$2808	\$2928

DEC 5YR WARRANTY

MB	TYPE	SIZE	SEEK	INT	EXT
850	DSP3085S	3.5	9.5	\$1192	\$1287
1050	DSP3105S	3.5	9.5	\$1150	\$1245
1660	DSP3160S	3.5	10	\$1577	\$1672
2000	DSP5200S	FH	12.5	\$1904	\$2024
3500	DSP5350S	FH	11.5	\$3246	\$3366

MOST OPTICAL

RMD5200S	256	HH	35	\$1450
		RE-WRITEABLE		

FUJITSU 5YR WARRANTY

MB	TYPE	SIZE	SEEK	INT	EXT
128	M2511A	3.5	38	\$ 936	\$1036
425	M2623FA	3.5	12	\$ 703	\$ 798
520	M2624FA	3.5	12	\$ 725	\$ 820
1079	M2266S	FH	14	\$1189	\$1309
1080	M2694FA	3.5	10	\$1075	\$1170
1750	M2652S	FH	11	\$1902	\$2022
2061	M2654S	FH	11	\$2088	\$2208

QUANTUM 2 YR WARRANTY

MB	TYPE	SIZE	SEEK	INT	EXT
240	LPS240S	1"	16	\$ 316	\$ 411
525	LPS525S	1"	10	\$ 725	\$ 820
700	PD700S	1"	10	\$1155	\$1255
1050	PD1050S	3.5	10	\$1083	\$1178
1200	PD1225S	3.5	10	\$1216	\$1311

MAXTOR 2YR WARRANTY

MB	TYPE	SIZE	SEEK	INT	EXT
213	7213SY	1"	15	\$ 296	\$ 391
340	LXT340SY	3.5	13	\$ 553	\$ 648
540	LXT540SY	3.5	8.5	\$ 899	\$ 994
1240	1240S	3.5	8.5	\$1263	\$1358
1059	PO-12S	FH	13	\$1052	\$1182
1345	P1-17S	FH	13	\$1265	\$1385

CONNER 1YR WARRANTY

MB	TYPE	SIZE	SEEK	INT	EXT
170	CP30170	1"	17	\$ 229	\$ 322
212	CP30200	1"	12	\$ 293	\$ 388
545	CP30540	1"	10	\$ 715	\$ 810

TAPE DRIVES

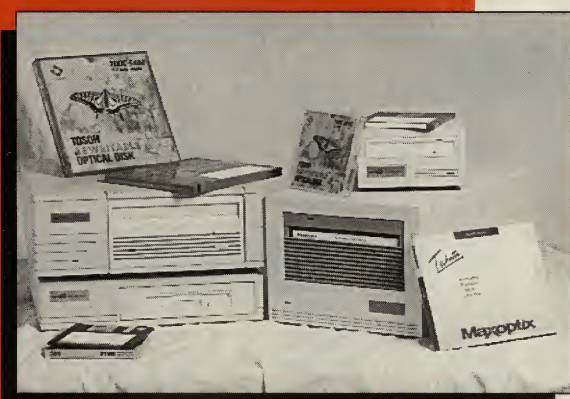
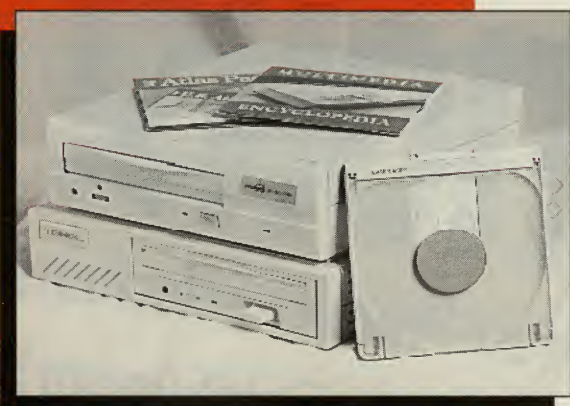
WANG DAT	3100	2GB	DAT	\$ 999
WANG DAT	3200	4GB	DAT	\$1298
EXABYTE	8205	2GB	8MM	\$1675
EXABYTE	8505	4GB	8MM	\$2629



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85Meg	17ms	3600	Quantum	2 Years	\$179	\$249
127Meg	17ms	3600	Quantum	2 Years	\$219	\$289
130Meg	17ms	3600	Maxtor	2 Years	\$209	\$269
170Meg	17ms	3600	Conner	2 Years	\$239	\$299
213Meg	15ms	3600	Maxtor	2 Years	\$299	\$369
213Meg	12ms	4000	Toshiba	1 Year	\$559 (2 1/2" for Powerbook)	
240Meg	16ms	4300	Quantum	2 Years	\$317	\$385
340Meg	15ms	3600	Maxtor	1 Year	\$539	\$599
520Meg	12ms	4400	Fujitsu	5 Years	\$769	\$829
540Meg	8.5ms	6300	Maxtor	2 Years	\$889	\$959
877Meg	12ms	3600	Toshiba	5 Years	\$969	\$1039
1050Meg	10ms	5400	Micropolis	5 Years	\$1199	\$1269
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1100Meg	10.5ms	5400	HPackard	5 Years	Sale! \$1199	\$1269
1230Meg	12ms	3600	Toshiba	5 Years	\$1139	\$1209
1200Meg	8.5ms	6300	Maxtor	3 Years	\$1299	\$1369
2060Meg	12ms	5400	Fujitsu	5 Years	\$2149	\$2239
3020Meg	11ms	5400	Micropolis	5 Years	\$3199	\$3299

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88Meg	SQ5110C	20ms	\$499	\$539
Media	44Meg 44Meg 5 pack	88Meg 88Meg 5 pack	105Meg 105Meg 5 pack	
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Brand	Speed	Transfer	Type	Internal	External
Texel	265ms	300KB/sec	Single Disk	\$449	\$509
Toshiba	200ms	330KB/sec	Single Disk	\$499	\$569
Toshiba	200ms	330KB/sec	Battery Powered	N/A	\$729
Pioneer*	380ms	150KB/sec	6 Disk Changer	N/A	\$899
Pioneer	270ms	612KB/sec	6 Disk Changer	N/A	\$1289
CD's (sold only with CD Drive)	Encyclopedia \$55	World Atlas \$22	Us History \$35	Family Doctor \$72	GuinnessRecords \$45
					Speakers \$90
					Caddies \$9

Tape Drives

Includes: Retrospect Backup Software Ver. 2.0, 1 Tape, Cables, and a 1 year warranty

Capacity	Type	Brand	Speed	Internal	External
250Meg	QIC 150	Archive	7MB/min	\$459	\$499
2Gig	DAT	Archive	11MB/min	\$1029	\$1069
2Gig	DAT	Hewlett Packard	12MB/min	\$1199	\$1259
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128Meg	30ms	Fujitsu	Fastest 128Meg	\$949	\$989
650Meg	53ms	Pioneer	MultiFunction	\$2059	\$2099
650Meg	27ms	Hewlett Packard	MultiFunction	Super Sale! \$2229	
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Media	20Meg	20Meg 5 pack	128Meg	128Meg 5 pack	650Meg
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525MB LPS 3.5" 10ms	\$689/\$749
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1.2GB PRO 3.5" 10ms	\$1149/\$1209

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213MB 7213S 3.5" 15ms	\$275/\$335
540MB 540S 3.5" 8.5ms	\$849/\$909
1.2GB 1240S 3.5" 8.5ms	\$1295/\$1355
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MICROPOLIS W/E

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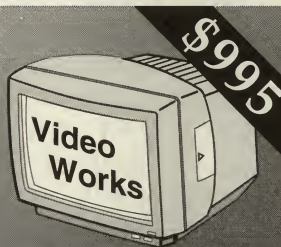
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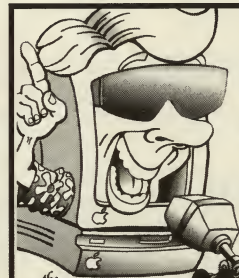
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Adobe posts record sales for Q2

By Jon Swartz

Mountain View, Calif. — Spurred by an increase in applications sales and solid PostScript licensing revenues, Adobe Systems Inc. last week reported record sales and strong profits.

The company, based here, said sales for its

second quarter ended May 28 rose 14 percent, to \$79.6 million from \$69.6 million for the same period a year ago.

Adobe's profits, meanwhile, were \$14.5 million, or 62 cents per share, compared with \$15.2 million, or 65 cents per share, for the same period last year.

For the six-month period, Adobe's sales were \$148.2 million, up 12 percent from \$132.2 million last year. Profits inched up 5 percent, to \$29.9 million from \$28.5 million last year.

Applications sales led the surge, jumping 31 percent to \$41.2 million, while licensing fees for PostScript were up slightly, to \$38.4 million.

Adobe CEO John Warnock said increased spending on R&D, particularly for the company's Acrobat document-distribution technology, took a bigger bite out of profits for the quarter. □

Digital

From Page 1

► **Authoring tools.** Apple will introduce The Apple Media Kit, a tool kit for authoring multimedia titles for the Mac, Windows and upcoming consumer devices from the Apple Personal Interactive Electronics division.

The kit will be centered around a new Apple application, code-named Special K, that will let users author cross-platform titles graphically without scripting. It will produce self-running titles for the Mac and Windows even before the release of Kaleida's ScriptX, which it will eventually support.

Mountain View, Calif.-based Kaleida will unveil ScriptX, its cross-platform, object-oriented, device-independent multimedia language and operating system, which is due next spring. Kaleida will demonstrate ScriptX on a Mac and on an Intel machine and will discuss its plans to move the environment to consumer-electronics products and interactive cable TV terminals.

► **QuickTime editors.** Users who may still think of QuickTime as "toyware" will get an eyeful of the latest professional-level upgrades of QuickTime software.

Adobe Systems Inc., also of Mountain View, will introduce Adobe Premiere 3.0, which is packed with high-end features, such as unlimited layers, faster processing and previews, and batch digitizing (see story, Page 4).

VideoFusion Ltd. of Maumee, Ohio, will ship VideoFusion 1.5, a faster upgrade to its QuickTime editing program that adds field rendering, an NTSC-safe color filter, built-in titling and support for hardware acceleration.

DiVA Corp. of Cambridge, Mass., will weigh in with its upcoming VideoShop 2.0, an upgrade that will add audio mixing, multi-track video effects, built-in titling, scrolling credits and motion control.

The Company of Science & Art of Providence, R.I., will show its recently shipped After Effects 1.1, which offers new special-effects controls and faster rendering.

► **Video hardware.** Radius Inc. of San Jose, Calif., will ship VideoVision Studio, a video production system that captures, displays and outputs 24-bit, full-screen, full-motion video.

The new Radius system uses an LSI Logic chip set to input and output video at a rate of 30 frames per second and 60 fields per second. The package includes Adobe Premiere 2.0 and VideoFusion 1.5.

SuperMac Technology Inc. of Sunnyvale, Calif., will introduce DigitalFilm Deluxe, a new configuration of its video-production system that will be aimed at multimedia developers. DigitalFilm Deluxe reportedly will come bundled with Macromedia Director as well as Adobe Premiere 2.0.

► **Interactive titles.** BusinessWeek and Ehrlich Associates of Oradell, N.J., will unveil The Multimedia BusinessWeek 1000, an interactive CD-ROM. The disc, which will be available for the Mac and Windows, will contain text, graphics and video about top companies.

HyperBole Studios of Houston reportedly will announce an alliance with Media Vision Technology Inc. of Fremont, Calif. The first fruit of this partnership will be an interactive science-fiction movie, due later this year. The company will also unveil VirtualCinema, a software "steering wheel" that lets viewers move their way through an interactive film. □



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Companion

From Page 1

► **Portable Finders.** Companion will offer Mac developers who migrate their applications to PowerPC a simple path to also create versions for Intel platforms, sources said.

Apple is working on porting the Mac Finder to run on top of DR DOS from Provo, Utah-based Novell Inc. (see MacWEEK, April 26). According to sources, 85 percent of the programming effort required to port to PowerPC Mac can be used to get the same applications running on the portable Finder for DR DOS. In essence, if developers build software for PowerPC, they get DOS versions practically for free.

Apple took a different approach to Unix compatibility, but the result for developers will be the same. Portable Finder for Unix, which is essentially a Mac emulator for Unix, will be able to run Mac applications without modification, Apple said (see MacWEEK, May 17). Thus, developers will have Unix markets available to them with little or no effort on their part. Mac, DR DOS and Unix applications reportedly would be able to share files across platforms.

► **Companion technologies.** Companion also encompasses various Mac technologies running on multiple platforms. QuickTime already runs on Windows and is being ported to Unix by Mountain View, Calif.-based Silicon Graphics Inc. AppleTalk also runs on a variety of platforms.

Other technologies Apple plans to port, sources said, include QuickDraw GX; the pen recognition technologies employed by Newton; and Amber, Apple's cross-platform standard for interapplication linking and embedding (see MacWEEK, May 17). Apple reportedly is also considering porting to other platforms its voice recognition technology, Casper, as well as a forthcoming standard for video conferencing and telephony.

► **PDA's.** In addition to moving some of Newton's handwriting recognition technologies to other platforms, Apple plans to migrate the Newton operating system to other processor architectures. According to sources, Apple hopes to run the Newton operating system on the Intel processor and to transition future Newton-based products from the ARM RISC chip to the 603 PowerPC chip.

► **Partners.** Apple won't go it alone in its efforts to get Apple everywhere. The company plans to recruit IBM PC clone makers to bundle the Companion technology for DR DOS with their machines, sources said. Bundles also could include QuickDraw GX and QuickTime and might appear on both portable and desktop machines. One leading candidate for a Companion bundle is Austin, Texas-based Dell Computer Corp.

Apple will also seek partners in more familiar places. Talks are reportedly proceeding with IBM Corp. and Sun Microsystems Inc. to put the portable Finder for Unix on some of their workstations. And Japanese consumer electronics giants may build hardware platforms for future versions of the Finder and Newton.

Sources said users should be aware that the Companion name does not necessarily indicate interoperability between versions of technologies on different platforms. Instead, the brand name is intended to assure users that Companion products will work together in some fashion, most likely at the file-interchange level.

Ultimately, Companion's success will be determined by users, one source said. If

Apple's customers understand and buy into what is a very complex set of relationships, then Companion could go a long way toward helping sell Apple's cross-platform products.

But as one user put it, Apple needs to offer more than Windows for Companion to be a success. "It's a constant battle for us to deal with cross-platform issues," said Bill Lyons of Union Carbide Corp. in South Charleston, W. Va. "[Companion] might be a solution, but I know how far Microsoft is ahead of the game." □

Sculley

From Page 1

fied Michael to the board as my potential successor and have given him increasing responsibilities. Michael was groomed to be CEO."

As president, Spindler was already responsible for most day-to-day operations at Apple. He will now take over human resources, legal and finance departments, as well. Sources said the transition is expected to be from "a person

who leads [Apple] to a person who runs it."

Sculley said the duties of running Apple became "just too much for a single person to do." He will instead focus on developing business contacts that will lead Apple into the next wave of computing.

Sculley said his decision to step down is not linked to Apple's recent announcement that it will record less-than-stellar earnings for its second half of fiscal 1993 (see MacWEEK, June 14). □

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LaserWriters

From Page 1

► **The Personal LaserWriter line.** Apple's low-end laser printer line includes two 300-dpi, 4-page-per-minute models: the QuickDraw-only Personal LaserWriter 300, which shipped last week for \$689, and the Personal LaserWriter NTR, which includes Adobe PostScript Level 2 and was recently cut to \$1,179.

Sources said Apple this fall may introduce a 600-dpi Personal LaserWriter based on a 4-ppm Canon or 5-ppm Fuji Xerox engine. By early next year, the company reportedly will introduce a version of the Personal LaserWriter 300 that supports PostScript or a page description language based on QuickDraw GX.

► **The LaserWriter Select line.** This series currently consists of the \$839 QuickDraw LaserWriter Select 300 and \$1,099 PostScript Level 1 Select 310, both of which were rolled out in February. Both models are based on a 300-dpi, 5-ppm Fuji Xerox engine.

Sources said Apple will unveil the Select 360, a 10-ppm, 600-dpi, Level 2 laser model based on a Fuji Xerox engine, at August's Boston Macworld Expo (see MacWEEK, June 14).

► **The LaserWriter Pro family.** Apple's top-of-the-line laser printer series now includes the \$2,099 LaserWriter Pro 600 and \$2,529 Pro 630, both introduced in January.

At Macworld, Apple reportedly will also release the LaserWriter Pro 800 and 810, new Level 2 models based on 15- and 20-ppm, 800-by-400-dpi Fuji Xerox engines. These models will include a new multiplexing interface

PowerBooks

From Page 1

plugging gaps in the product line and initiated an internal program that offers steeply discounted Duo 210s to Apple employees.

Under the internal program, any of Apple's estimated 14,000 employees can purchase up to four 210s for \$999 each for personal use or resale. The Duo 210 lists for \$1,839 and now comes with a \$100 rebate.

According to industry observers, Apple's actions are necessary to erase a glut of PowerBooks in the channel. A Mac buyer for a national distributor that represents more than 500 dealers blamed the backlogs on supply constraints, a traditionally slow second quarter and frequent price cuts.

Another reason for the drop-off, sources said, is that PowerBook sales to Apple's installed base — which accounted for a majority of PowerBook sales last year — have declined.

One East Coast dealer, who asked not to be identified, said he intentionally low-balled the sales price of PowerBook 180s by \$400 in newspaper ads to bring in customers. "There's been a lull in sales, no question," he said.

However, some dealers said PowerBook sales have remained solid during the past three to four months. "We could have delivered a lot more 180s had they been readily available," said Robert Hackett, vice president of Computer Solutions of Leesburg Inc. in Leesburg, Va.

Ken Baker, owner of Computer Resources Inc. in Wethersfield, Conn., doesn't carry the Duo 210, and said he wasn't surprised to hear rumors of the 210's demise.

"We think the 210 is ill-conceived and badly executed," Baker said. "We will order a Duo

Apple's crowded laser printer lineup

MODEL	PRICE	RESOLUTION	SPEED	POSTSCRIPT	INTERFACES
Personal LaserWriter 300	\$689	300 dpi	4 ppm	No	Serial
Personal LaserWriter NTR	\$1,179	300 dpi	4 ppm	Level 2	LocalTalk, parallel, serial
LaserWriter Select 300	\$839	300 dpi	5 ppm	No	Serial, parallel
LaserWriter Select 310	\$1,099	300 dpi	5 ppm	Level 1	Serial, parallel
LaserWriter Pro 600	\$2,099	600 dpi	8 ppm	Level 2	LocalTalk, parallel, serial
LaserWriter Pro 630	\$2,529	600 dpi	8 ppm	Level 2	EtherTalk, LocalTalk, parallel, serial
LaserWriter IIf	\$1,869	300 dpi	8 ppm	Level 2	LocalTalk, serial
LaserWriter IIg	\$2,309	300 dpi	8 ppm	Level 2	Ethernet, LocalTalk, serial
FORTHCOMING:					
LaserWriter Select 360	Not set	600 dpi	10 ppm	Level 2	LocalTalk, parallel, serial
LaserWriter Pro 800	Not set	800 dpi	15 ppm	Level 2	LocalTalk, serial, parallel, optional VPT protocol multiplexing
LaserWriter Pro 810	Not set	800 dpi	20 ppm	Level 2	LocalTalk, serial, Ethernet, optional VPT protocol multiplexing

scheme, sources said (see MacWEEK, June 14).

► **The LaserWriter II line.** This older series comprises the \$1,869 IIf and \$2,309 IIg, both based on 8-ppm, 300-dpi Canon engines.

Although he declined to comment on unannounced products, Brad Blietz, Apple printer product manager, said Apple has organized its

laser printers according to extensibility and intended market. For example, the Personal LaserWriter 300 is aimed exclusively at the consumer and education channels, he said. It also lacks PostScript and is limited to a 100-sheet input cassette and a serial interface.

The Select models "are for personal use or small workgroups," Blietz said. "Users can select the functionality they want and upgrade later on." In contrast, "The LaserWriter Pros are higher-end, higher-volume products," he said.

Blietz declined to comment on reports that the LaserWriter IIf and IIg and the Personal LaserWriter NTR are on their way out, but he agreed that they do not fit comfortably into Apple's current laser line. "Obviously, the IIf and IIg and the NTR were grandfathered into the new [naming] scheme, and we're letting the market decide what it wants," Blietz said. □

would send Apple's stock down 5 to 10 points.

Others said Apple, which had fiscal 1992 revenues of \$7.08 billion, must react quickly.

"[Apple] will have serious earnings problems over the next couple of years if it doesn't do something fast and do it very aggressively," said Tom Rooney, an analyst at Donaldson Lufkin & Jenrette, a New York investment banking company that has had a "sell" on Apple's stock for the past six months.

Rooney said Apple has to make a decision either to compete on price against vendors in the Intel world, which means gross margins substantially lower than 38 percent, or forgo market share and target software niches.

"If Apple chooses to compete in the dog-eat-dog world where vendors are selling machines with little differentiation, then that's a loser strategy," Rooney said. "It's more viable to seek acquisitions and bundle more software and target niche markets."

The impending layoffs are the second major work force reduction at Apple in as many years. The last one came in June 1991, when the company eliminated 1,500 positions. In September 1992, Apple cut 345 workers when it closed its Fremont, Calif., manufacturing plant. □

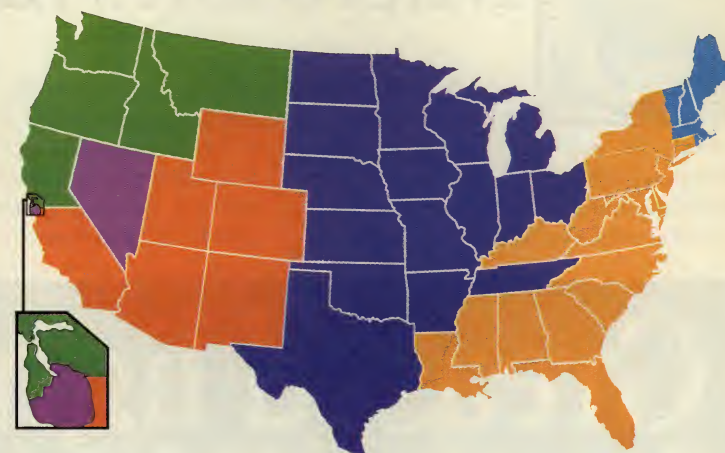
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Looking ahead



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July 26	Multimedia Security	July 15	July 13
Aug 2	Newton, Client/server computing Networking, PowerBooks Desktop publishing	July 22	July 20

*For more information on these articles, call (415) 243-3581.



Microsoft's miserly missive

Apple's slash-and-burn human-resources policies are enough to put the fear of the budget watchers in all of us. CNN calls it the temping of the American work force. The Knife says that employees at Apple have another

word for it, but since this is a family-oriented publication, that word is best left unprinted.

Not that employees are in fat city at Microsoft, where sales have grown a whopping 40 percent or so each quarter for the past several years. The Knife has seen a recent internal memo that

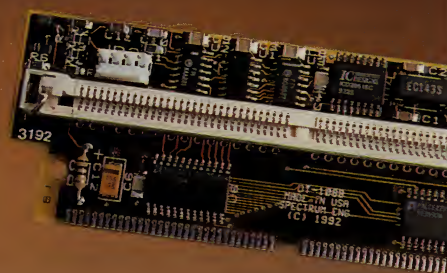
reminds top managers that Microsoft stays insanely profitable only by watching every penny. As the memo puts it, "Given the choice, we prefer weenies over shrimp." And the Knife bets the employees consider forgoing a bit of seafood a wise course of action if it betters

the odds of avoiding an unexpected pink slip.

The memo also notes that some departments occasionally exceed the monthly per-employee T-shirt budget. On the other hand, there's apparently no redundancy on the technical-support staff. Befuddled Microsoft users calling for tech support are sometimes told they can expect a call back in two to four days. Some are also being notified that this extraordinary level of responsiveness to the needs of the customer will be augmented soon with the inauguration of the company's new 900 support line.

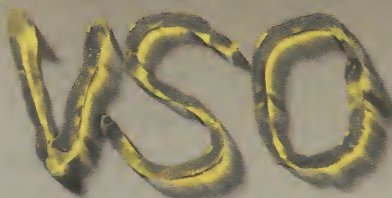
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Better than rumored. As Apple responds to the realities of its earnings performance and the staff prepares for the new pragmatism as Michael H. Spindler takes hold of the helm with both hands, the Cupertino campus is fairly seething with rumor.

First on the list of rumors that deserve to be shot down before they scare the children and the investor community is the fantasy that the PowerPC project is headed for disaster. The Knife is happy to report that Apple's strategically most important product is still on track for January. Those rumors about a six-month delay are based only on fear and ignorance.

Another scary story that deserves debunking is the death of AOC. While the project has ridden a rough road and is many months delayed, there is no (or at least very little) truth to the rumor that the project has been cancelled.

And as for last week's item about comings and goings down in Texas, when the Knife mentioned a possible technology transfer he wasn't specifically referring to the departure of Eric Harslem, VP for the Mac desktop group, to become Dell's chief technology officer. But coming on the heels of PowerBook guru John Medica's earlier move, it does raise the question of why Dell is so interested in Macintosh talent.

Bottom feeding. FullWrite Professional, possibly the ultimate cult word processor for the Mac, has escaped from the stifling confines of the basement at Borland International. The Knife's sources claim that an individual in Boston somehow persuaded Borland to part with the rights to this long-neglected product. Although details are sketchy, it's a safe bet that the new owner has put System 7 compliancy at the top of the list of improvements he plans to make. The fate of Full Impact, the other Mac product acquired by Borland in the course of gobbling up Ashton-Tate, is still up in the air.

Turning heads. Marketing types are known pushovers, but techies are more prone to unseemly skepticism, even when it comes to cool new toys such as Newton. So the pressure was on Apple at MacHack last week to provide a convincing demonstration of what the Newton can do. Fortunately, Apple was up to it. The generally hostile audience was genuinely wowed by what it saw. In fact, the conclusion of the demo was marked by a standing ovation. Pick up a Newton this summer for *well* under a grand. □

Now that we know what they meant when they dared us to take the Pepsi challenge, it might be prudent to pour that soda into a MacWEEK mug. For those with a tip, safety starts at (415) 243-3544, fax (415) 243-3650, Internet (mac_the_knife@macweek.ziff.com), AppleLink (MacWEEK) or CompuServe/ZiffNet/Mac.

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